BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

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In the Matter of the Application of Crimson California Pipeline L.P. (PLC-26) for Authority to Establish a Memorandum Account to Track Costs Mandated by Assembly Bill (AB) 864 and to Impose a Surcharge for Recovery of Mandated AB 864 Costs.	Application No.

APPLICATION

DOWNEY BRAND LLP
James D. Squeri
455 Market Street, Suite 1500
San Francisco, CA 94105
Telephone: (415) 848-4831
Facsimile: (415) 848-8401
E-mail: jsqueri@downeybrand.com

Attorneys for Crimson California Pipeline L.P.

Dated: March 15, 2022

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

In the Matter of the Application of Crimson California Pipeline L.P. (PLC-26) for Authority to Establish a Memorandum Account to Track Costs Mandated by Assembly Bill (AB) 864 and to Impose a Surcharge for Recovery of Mandated AB 864 Costs.	Application No.

APPLICATION

In accordance with Rule 2.1 of the Commission's Rules of Practice and Procedure, Crimson California Pipeline, L.P. ("Crimson" or "Applicant") respectfully requests that the California Public Utilities Commission ("Commission") authorize Crimson: (1) to establish a memorandum account to track costs mandated by Assembly Bill (AB) 864; and (2) to impose a surcharge for the recovery of mandated AB 864 costs with respect to crude oil transported on its southern California pipeline system.

A. Information Required By Commission Rules

1. Applicant Information Required by Rule 2.1(a)

Applicant Crimson is a California limited partnership. Its principal place of business is 3760 Kilroy Airport Way, Suite 300, Long Beach, California 90806; its telephone number is (562) 285-4100. Its general partner is Crimson Pipeline, LLC, which is wholly owned by Crimson Midstream Operating, LLC. Crimson Midstream

Operating, LLC is wholly owned by Crimson Midstream Holdings, LLC. Crimson Midstream Holdings, LLC is privately held and controlled by John D. Grier.[1]

Crimson currently owns and operates six common carrier crude oil pipeline systems in California, including various common carrier crude oil pipeline systems acquired pursuant to Commission authorization. In Decision 05-04-006 issued in A. 04-06-002, the Commission authorized Crimson's acquisition of: (i) the Thums pipeline system, which transports crude oil produced in the Long Beach Harbor area to various refineries and terminals in the Los Angeles area; (ii) the Ventura gathering pipeline system, which transports crude oil produced in the Fillmore and Ventura areas to the Crimson Ventura Tank Farm; and (iii) the Ventura 10-inch pipeline system, which transports crude oil from the Crimson Ventura Tank Farm and crude oil produced in the Inglewood area to various refineries in the Los Angeles area.

Decision 07-12-046, issued in A. 07-10-010, authorized Crimson's acquisition of the Line 600 pipeline system and the Line 700/East Crude pipeline system and its associated gathering pipelines, which generally parallel Crimson's pre-existing pipeline systems. The Line 600 pipeline system includes approximately 100 miles of pipe, three tanks with over 200,000 barrels of storage capacity and a crude oil truck unloading facility. The Line 700 system includes over 30 miles of pipe, one tank with approximately 5,000 barrels of storage capacity, and a crude oil truck unloading facility.

[1] Application No. 21-02-013 filed February 9, 2022 requests authority for John D. Grier to sell and CorEnergy Infrastructure Trust, Inc. to acquire control of Crimson California Pipeline L.P. and San Pablo Bay Pipeline Company, LLC pursuant to Public Utilities Code Section 854. A. 21-02-013 is pending.

Decision 10-12-005, issued in A. 10-08-020, authorized Crimson's acquisition of certain common carrier crude oil pipelines owned and operated by Chevron Pipe Line Company ("Chevron"), identified as Chevron's Inglewood and Northam crude systems, including associated gathering systems, with points of origination in Los Angeles and Orange Counties and having destinations in Los Angeles County.

It is Crimson's southern California pipeline system, referenced above,[2] that is the subject of the authorization sought by this Application to establish an AB 864-related memorandum account and to impose a surcharge on the transportation of crude oil to recover reasonable costs incurred in complying with the mandates of AB 864.[3]

2. Correspondence and Communication Information Required by Rule 2.1(b)

Correspondence and communications concerning this Application should be directed to the following Crimson representative:

James D. Squeri
Downey Brand LLP
455 Market Street, Suite 1500
San Francisco, CA 94105
Telephone: (415) 848-4831
Facsimile: (415) 848-8401
E-mail: jsqueri@downeybrand.com

[2] The six Crimson jurisdictional pipeline systems are identified as follows: (1) Thums; (2) Wilmington (Ventura) 10"; (3) Wilmington (Ventura) gathering; (4) Line 600/700; (5) Brea West; and (6) Chevron Northam, Inglewood and #3-6" line.

[3] Crimson owns and operates the KLM pipeline system in northern California; San Pablo Bay Pipeline Company, LLC which provides crude oil transportation service to Bay Area refineries is affiliated with Crimson, both of which are owned by Crimson Midstream Holdings, LLC. Neither the KLM system nor the San Pablo Bay Pipeline Company system are subject to imposition of the surcharge proposed by this application.

B. Information in Support of Requested Authorization

The purpose of this application is two-fold: (1) to establish a memorandum account to track costs and expenses incurred by Crimson in complying with the requirements of Assembly Bill (AB) 864; and (2) to impose a surcharge to recover costs and expenses incurred by Crimson in complying with the mandates of AB 864.

i. Background

Following a 2015 release of crude oil near Refugio Beach in Santa Barbara, California, Assembly Bill 864 was signed into law. The main goal of the bill is to protect environmentally and ecologically sensitive areas (EESAs) such as state waters and wildlife by reducing the amount of hazardous liquid that could be released in the event of a spill. AB 864, which added Section 51013.3 to the Government Code, adopts regulations that require pipeline operators to evaluate and, if appropriate, install the best available technology (BAT) on new, replacement, and existing intrastate pipelines near EESAs in the coastal zone.[4]

Specifically, CBAT applies to pipelines under the jurisdiction of the California Office of the State Fire Marshal (CalFire) that (1) directly intersect or are within 0.5 mile of an EESA in the coastal zone or (2) indirectly impact an EESA where a spill analysis (spill vector) shows potential impact to an EESA in the coastal zone.

CBAT requires a process that incorporates risk and spill modeling for comparing the baseline or current configuration of a pipeline against selected pipeline scenarios for

[4] The regulations requiring evaluation and installation of BAT on Crimson's existing pipelines in or near the coastal zone that are mandated by AB 864 are hereafter referred to as CBAT (Coastal Best Available Technology).

potential emergency flow-restriction device (EFRD) placement and/or leak detection improvements. This modeling process requires the evaluation of BAT for pipeline spill prevention based on operational parameters and product delivered.

Per CBAT regulation, Title 19 of the California Code of Regulations (CCR) Section 2108, the timing for compliance and prioritization of pipeline improvements, including retrofitting existing pipelines, is set forth as follows:

- May 1, 2021: any new or replacement pipeline near an EESA in the coastal zone shall use BAT.
- October 1, 2021: an operator of an existing pipeline located near an EESA in the coastal zone shall submit a risk analysis and a plan to retrofit existing pipelines with the BAT.
- January 1, 2022: date by which CalFire will notify operator if an risk analysis has been accepted or denied.
- Within 60 days of acceptance: an operator of an existing pipeline located near an EESA in the coastal zone shall submit a detailed supplemental implementation plan.

By correspondence dated December 30, 2021, CalFire notified Crimson that its plan to retrofit existing pipelines with the BAT has been accepted. (See Exhibit 1 attached hereto). On February 28, 2022, Crimson submitted the required supplemental implementation plan. (See Exhibit 2 attached hereto).

It is recovery of the mandated costs related to implementation of Crimson's initial risk analysis and CBAT retrofit plan, which is described in detail in Section B.II below, as well as its supplemental implementation plan, that warrants Crimson's request to establish a memorandum account to track related costs and expenses and to implement a

surcharge intended to recover the cost of Crimson's compliance with the mandated requirements of CBAT.

ii. Crimson's Risk Analysis Methodology

To identify which of its pipeline segments are subject to CCR Section 2113, Crimson relied on relied on prescriptive mapping from CalFire which identifies pipelines subject to CBAT as those within ½ mile of the coastal zone and/or the EESA locations identified in the State of California oil spill contingency plan. CalFire's map also includes pipelines in "Could Affect Zones" which encompass storm drains and waterways 50 miles inland. Based upon CalFire's prescribed mapping, Crimson has identified the pipeline system segments that are near EESAs in the coastal zone. Of the pipeline segments identified as subject to CCR Section 2113, the majority are segments on Crimson's southern California system, and three segments are on the San Pablo Bay Pipeline Company system operating in northern California.[5]

Crimson engaged an outside consultant, Integrity Solutions, to assist in evaluating and documenting the required information necessary for Crimson's required submission to CalFire. Each of Crimson's affected pipeline segments was evaluated using sophisticated spill modeling software. Relying on an iterative process between Crimson and Integrity Solutions, Crimson-operated pipeline segments were evaluated for Baseline Spill potential. Each segment was analyzed to determine the benefits of adding or improving Emergency Flow Restricting Devices (EFRD).

[5] Crimson notes that the subject application does not seek recovery of any CBAT-related expenses with respect to any San Pablo Bay Pipeline Company pipeline segment.

For each of the identified pipeline segments, Crimson prepared a CBAT Pipeline Risk Analysis Report. Each report is approximately 35-40 pages in length. The CBAT Risk Analysis Report for each, examined pipeline segment evaluates the spill and risk-reduction effectiveness of potential BATs and includes the following: (1) modeling to determine the theoretical release volume that could affect a defined EESA; (2) evaluation of reduction in theoretical release volumes associated with the installation of EFRDs; (3) evaluation of industry-standard leak detection methods; and (4) evaluation of the current leak-detection system and potential enhancements.[6]

Next, to determine which of its pipeline segments in or near EESA locations require retrofitting (adding EFRDs) or enhanced leak detection improvements under the CBAT regulation, Crimson applied the following criteria:

- Current Reasonable Worst Case Discharge Volume (which is a prescriptive calculation) must be greater than 250 barrels;
- Existing Motor Operated Valve (MOV) spacing is 2 miles or greater;
- Pipeline segment is greater than 2 miles long; and
- Spill Reduction volume achieved by EFRD improvement must be more than 50 barrels or achieve a 20% reduction.

Under the oil spill response regulation administered by CalFire, Crimson is vested with discretion to determine for each pipeline segment the necessity for improvements as well as the scope of reasonable improvements to be implemented when retrofitting is

[6] The CBAT Pipeline Risk Analysis Report for Crimson's Ventura 10-inch pipeline is included as Exhibit 3 attached hereto and is illustrative of each of the Risk Analysis Reports submitted by Crimson to CalFire with respect to the remaining Crimson pipeline segments subject to CCR 2113.

required. In particular, the regulation allows Crimson to improve leak detection software in lieu of installing EFRD. Crimson notes that the regulation does not establish prescriptive thresholds or required reduction in calculated spill volume. CalFire has also indicated its willingness to allow Crimson to memorialize and take credit for currently installed EFRDs and other existing mechanisms for reducing the impact of any oil spill.

iii. Crimson's Recommended CBAT Improvements

Based upon application of the above-referenced criteria to the pipeline segments under review, Crimson determined the following: (1) the San Pablo Bay Pipeline Company segments at issue do require improvements determined to be satisfied by enhanced leak detection improvements;[7] and (2) several of the pipeline segments on the southern California system do require improvements determined to be satisfied by retrofitted improvements (adding EFRDs) on certain segment and satisfied by enhanced leak detection improvement on other segments as required by CCR Section 2113.[8]

For each of the pipeline segments identified as appropriate for retrofitting or enhanced leak detection improvements, Crimson submitted Form PSD-2113, Implementation Plan, to CalFire. Form PSD-2113 describes the proposed BAT to be implemented with respect to each pipeline segment and demonstrates how the proposed

[7] With regard to planned enhanced leak detection improvements on the San Pablo Bay Pipeline Company system, Crimson is not seeking recovery of any CBAT-related expenses.
[8] The projects on Crimson's southern California system which require retrofitted improvements and/or enhanced leak detection improvements are described in Section IV below.

BAT limits the quantity of release in the event of a spill.[9] On February 28, 2022, Crimson submitted the required supplement to each Form PSD-2113 analysis for that segment providing further detail regarding planned improvements as well as timing of such improvements.[10]

The Table below identifies each of the pipeline segments on which leak detection improvements are planned as well as a description of the recommended improvement as set forth in each Form PSD-2113 submitted to CalFire:

a. Crimson's Planned Improvements on Its Southern California System:

TABLE I

PLANNED PIPELINE SEGMENT IMPROVEMENTS

CSFM Number(s)	Pipeline Segment	CBAT Improvements
0042	Inglewood 12 Inch	ADD Vault[11] and MOV at MP 1.62
0047	Seal Beach to NY Junction #2	Add MO to Existing Block Valve 758 at MP 6.6
0334	Ventura 10 Inch Trunkline	Add MO[12] to Existing Block Valve 7022 at MP 59.94

[9] Form PSD-2113 submitted to CalFire for each of the pipeline segments on which retrofitted improvements and/or enhanced leak detection improvements will be implemented are included as Exhibit 4 attached hereto.
[10] See Exhibit 2 attached hereto.
[11] "Vault" refers to a new, below-ground concrete vault typically in a city street, requiring significant engineering, permitting and construction.
[12] "MO" refers to Motor Operator which involves addition of a motor operator to an existing valve with associated equipment to allow remote operation of the valve.

0458, 0339, 0786, 0447, 1317, 0852, 0854, 0855, 0858	East Crude System (Multiple segments)	Add Atmos[13] Leak detection PLUS Add MO to Existing Block Valve 471 at MP 5.69; add MO to existing valve 418 at MP 2.3
0415	Thums 8 Inch	Add MO to Existing Block Valve 9560 at MP 2.26
0459	Torrey to Santa Paula	Add Atmos Leak Detection
0460	Harbor Station to Ventura 10 Inch	Install Vault and Check Valve at MP 3.5
0460-A	Santa Paula to V-10	Add MO to Existing Block Valve 217 at MP 4.92
0825, 1305, 0039, 0041	Northam Gathering Huntington Beach to NY Junction	Install MO on Existing Block Valve 602 at MP 7.7
0867	Sulfur Crest	Add MO to Existing Block Valve 51 at MP 2.97

b. <u>The Estimated Cost of Crimson's Required CBAT Improvements</u>:

Crimson has developed preliminary cost estimates for each pipeline segment improvement for which it has submitted an implementation plan to CalFire; the cost estimate for each proposed pipeline segment improvement is shown in Table II below:

[13] Atmos International is the industry-standard in supplying leak detection technology.

TABLE II

ESTIMATED SEGMENT-BY-SEGMENT IMPROVEMENT COSTS

CSFM Number(s)	CBAT Improvements	Cost Estimate
0042	ADD Vault and MOV at MP 1.62	$2,540,000
0047	Add MO to Existing Block Valve 758 at MP 6.6	$420,000
0334	Add MO to Existing Block Valve 7022 at MP 59.94	$570,000
0458, 0339, 0786, 0447, 1317, 0852, 0854, 0855, 0858	Add Atmos Leak detection PLUS Add MO to Existing Block Valve 471 at MP 5.69; add MO to existing valve 418 at MP 2.3	$1,155,000
0415	Add MO to Existing Block Valve 9560 at MP 2.26	$420,000
0459	Add Atmos Leak Detection	$140,000
0460	Install Vault and Check Valve at MP 3.5	$1,900,000
0460-A	Add MO to Existing Block Valve 217 at MP 4.92	$420,000
0825, 1305, 0039, 0041	Install MO on Existing Block Valve 602 at MP 7.7	$570,000

0867	Add MO to Existing Block Valve 51 at MP 2.97	$420,000
	Total	$8,555,000

While Crimson recognizes that CalFire has accepted Crimson's risk analysis proposed retrofit plan for each of the pipeline segments, it is also aware, due to any number of circumstances and contingencies relating to planning, permitting and construction, that the scope of CBAT-required pipeline improvements that are eventually implemented may vary from the initial and supplemental implementation plans that have been submitted to CalFire. Consequently, the actual costs incurred by Crimson in complying with CBAT for which it seeks recovery via a surcharge will likely vary from the above-referenced estimates as a function of future changes and revisions to Crimson's initial and supplemental CBAT-related implementation plans. It is the uncertainty about the scope of costs incurred by Crimson in meeting the requirements of CBAT and the need to accurately reflect actual costs incurred by Crimson in meeting the requirements of AB 864 that justify and require establishment of a memorandum account to record the and actual, CBAT-related costs incurred by Crimson.

C. Crimson's Request to Establish a CBAT-Related Memorandum Account

Crimson requests authorization to establish a memorandum account, the CBAT Improvement Account (CBATIA), to track its actual costs incurred in complying with the requirements of CBAT. Since the enactment of AB 864, Crimson has been incurring

related costs and will continue to do so, at a minimum, through April 1, 2023, the date on which mandated pipeline improvements are to be completed. As noted above, Crimson has prepared an initial estimate of the cost of its proposed plan for implementing retrofitted and enhanced leak-detection improvements on the pipeline segments it has identified as required by CBAT. Crimson has also noted that actual costs incurred in implementing CBAT will vary from the cost estimates associated with its initial implementation plans.

The purpose of the CBATIA, once authorized by the Commission, will be to track and record the costs incurred by Crimson in meeting the mandate of AB 864 by evaluating and, as appropriate, installing the best available technology on its existing intrastate pipelines that are near environmentally and ecologically sensitive areas in the coastal zone. The CBATIA will consist of separate sub-accounts for recording the costs of evaluating and installing CBAT, including the following costs: (1) Engineering; (2) Atmos & SCADA Programming; (3) Permitting; (4) Equipment and Materials; (5) Construction; and (6) Legal.

I order to ensure Crimson's ability to recover reasonable costs incurred to date in complying with the requirements of AB 864, Crimson requests that Commission authorization to establish the CBATIA provide that the CBATIA is effective April 1, 2020 and remains open until closed at the direction of the Commission.[14]

[14] Crimson first began incurring material costs related to compliance with the mandates of AB 864 as of the second quarter of 2020.

Accordingly, to ensure that Crimson is allowed to track and recover the actual cost of its compliance with CBAT, including costs spent to date for preparation of the Risk Analyses and Implementation Plans and supplemental implementation plan,[15] as well as to ensure that its shippers pay no more than the actual costs of such compliance, Crimson requests authority to establish a memorandum account, CBATIA, to provide an auditable record of the reasonable costs incurred by Crimson in meeting the mandates of CBAT. The memorandum account will also record the estimated volumes used to calculate the surcharge as well as the actual volumes subject to the surcharge in any relevant time period. Given a record of actual costs incurred and actual volumes subject to imposition of the surcharge, both the interests of Crimson and its shippers will be protected. Once implemented, the surcharge will remain in effect for the period[16] required to recover the actual costs of CBAT compliance as recorded in the CBATIA. Upon recovery by Crimson of the costs recorded in the CBATIA, the surcharge will terminate.[17]

D. Crimson's Request to Implement a Surcharge to Recover CBAT-Related Costs

Crimson has been incurring costs related to CBAT and will continue to do so well into 2023. Crimson proposes to recover the costs of CBAT compliance through imposition of a per barrel surcharge on volumes transported on its SoCal system. Based upon the initial implementation plan and supplemental plans submitted to CalFire,

[15] Crimson began incurring cost related to CBAT-related requirements in the second quarter of 2020.
[16] Crimson proposes to recover the costs recorded in the CBATIA over a period of three years.
[17] Upon approval by the Commission of Crimson's request for authorization to establish a memorandum account to track costs mandated by Assembly Bill (AB) 864, Crimson will add an it an item number to its Tariff Rules and Regulations to reflect implementation of the CBAT Improvement Account (CBATIA), a draft copy of which is attached hereto as Exhibit 5.

Crimson's best estimate of its cost of compliance with CBAT is $8.6 million. Crimson proposes to recover its CBAT-related costs over a three-year period. Recovery of $8.6 million over three years given estimated annual throughput on the SoCal system of 20.6 million barrels produces a per barrel surcharge of $0.14.[18] The tariff routes and related movements on Crimson's southern California pipeline system that will be subject to imposition of the requested surcharge are set forth in Exhibit 6attached hereto. Since the work mandated by AB 864 will affect virtually every pipe segment in Crimson's southern California pipeline system and due to the impracticality of doing otherwise, the surcharge will be applied on an equal cents per barrel to all tariff routes and related movements listed in Exhibit 6.

Crimson hereby requests authority to establish a per barrel surcharge of $0.14 on its SoCal system to recover its cost of compliance with CBAT. While the proposed surcharge is based upon estimated costs and estimated volumes, Crimson notes that establishment of the CBATIA memorandum account to track actual costs as well as the tracking of actual versus estimated volumes will ensure that Crimson fully recovers and shippers only pay the actual costs of compliance with CBAT.

E. Information Required for Rule 2.1(c) and Rule 7 Compliance

The subject application seeks authorization: (1) to establish a memorandum account to track costs mandated by Assembly Bill (AB) 864; and (2) to impose a

[18] The tariffed routes on Crimson's SoCal system that will be subject to the proposed surcharge are set forth in Exhibit 6 attached hereto.

surcharge for the recovery of mandated AB 864 costs with respect to crude oil transported on its southern California pipeline system. The issue before the Commission is the reasonableness of the requested authorization.

Crimson has provided notice to its shippers of its request to impose a surcharge related to AB 864 compliance by providing them copies of the subject application.

1. Proposed Category: Crimson proposes that the application be treated as a "ratesetting" proceeding.

2. Need for Hearing: Hearings will be needed on this application only to the extent a material issue of fact is raised by timely protest. Accordingly, while it does not know whether a hearing will be required, Crimson does not believe that there is any reasonable grounds for protest. . If no hearing is required, Crimson would request that an ex parte decision approving the rate increase request be issued by the Commission as quickly as is practicable given that Crimson has already incurred and will continue to incur significant costs . Crimson proposes a schedule as set forth below.

3. Issues Requiring Consideration: The sole issue raised by this application is whether Crimson's request to establish an AB 864-related memorandum account and to impose a surcharge for recovery of such mandated costs is reasonable.

4. Proposed Schedule: Crimson proposes the following schedule:

Application Filed	March 15, 2022
Notice in Daily Calendar	TBD by CPUC Docket Office
Protests Due	30 Days After Daily Calendar Notice
Prehearing Conference	April, 2022

ALJ Proposed Decision	June, 2022
Commission Decision	July, 2022

F. Exhibits

In support of its application, Crimson provides the following information and exhibits:

Exhibit 1	CalFire Acceptance of Risk Analysis and Initial Implementation Plan
Exhibit 2	Crimson Supplemental Implementation Plan
Exhibit 3	CBAT Pipeline Risk Analysis Report for Crimson's Ventura 10-inch Pipeline
Exhibit 4	Form PSD-2113 Implementation Plan for Specific Pipeline Segments
Exhibit 5	CBATIA Tariff Item
Exhibit 6	Draft Tariff Sheets Showing Routes and Related Movements Subject to Surcharge

WHEREFORE, Crimson requests:

1. That the Commission authorize Crimson to establish by advice letter filing a memorandum account, the CBAT Improvement Account (CBATIA), for the purpose of recording the costs reasonably incurred by Crimson in complying with the mandates of AB 864;

2. That the Commission authorize Crimson to file an advice letter implementing a surcharge of $0.14 per barrel for transportation of crude oil on its southern California system for the purpose of recovering reasonable costs incurred by Crimson in complying with the requirements of AB 864; and

3. That the Commission grant such other and further relief as shall be just and proper.

Respectfully submitted this 15th day of March, 2022 at San Francisco, California.

DOWNEY BRAND LLP
James D. Squeri
455 Market Street, Suite 1500
San Francisco, CA 94105
Telephone: (415) 848-4831
Facsimile: (415) 848-8401
E-mail: jsqueri@downeybrand.com

By */s/ James D. Squeri*
James D. Squeri

Attorneys for Crimson California Pipeline L.P.

VERIFICATION OF COUNSEL

I, James D. Squeri, declare:

I am an attorney at law duly admitted and licensed to practice before all courts of this state and I have my professional office at Downey Brand LLP, 455 Market Street, Suite 1500, San Francisco, California 94105.

I am an attorney for Applicant, Crimson California Pipeline L.P., in the above-entitled matter.

No officer of Crimson California Pipeline L.P. is present in the county in which I have my office and for that reason I am making this verification on behalf of Crimson California Pipeline L.P.

I have read the foregoing Application and know its contents thereof.

I am informed and believe that the matters stated therein are true and, on that ground, I allege that the matters stated therein are true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed at San Francisco, California on this 15th day of March, 2022.

/s/ James D. Squeri
James D. Squeri

3079/002/X227839.v1

Exhibit 1

CalFire Acceptance of Risk Analysis
and Implementation Plan

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
Pipeline Safety Division
3780 Kilroy Airport Way, Suite 500
Long Beach, California 90806
(562) 497-0350
Website: www.fire.ca.gov

CERTIFIED MAIL No: 7020-1290-0001-2904-5587

December 30, 2021

Valerie Jackson
Vice President – Engineering & Compliance
Crimson Pipeline L.P.
3760 Kilroy Airport Way, Suite 300
Long Beach, California 90806

SUBJECT: COASTAL BEST AVAILABLE TECHNOLOGY (BAT) ACCEPTANCE OF RISK ANALYSIS AND INITIAL IMPLEMENTATION PLAN

Dear Ms. Jackson:

CAL FIRE – Office of the State Fire Marshal (OSFM) received your letter dated October 7, 2021 and December 23, 2021 requesting an acceptance of risk analysis and initial implementation plan of the best available technology for the following pipelines:

OSFM	Operator Description
#0039	Huntington Beach to Northam Station
#0041	Northam Station to New York Junction
#0047	Seal Beach to New York Junction
#0334	Ventura 10" Crude Pipeline
#0339	Brea Crude Line 700
#0415	Thums 8"
#0447	East Crude Line 700A2
#0458	East Crude Line 700A1
#0459	Torrey to Santa Paula
#0460	Harbor Station to V-10 Line 600
#0708	Tracy to Avon
#0709	Avon to Martinez
#0786	East Crude Line 700
#0796	Gustine to Tracy
#0825	CRC Huntington Beach to Garfield Junction
#0852	Butler Road Line
#0854	West Naranjal
#0855	A Gathering Sterns to Stewart
#0857	Redu Gathering

#0858	Richfield to Sterns
#0867	Sulfur Crest
#0936	SHPI Central Unit
#1179	SHPI Lateral on Spring St.
#1305	Garfield Junction to Wilmington Channel
#1307	SHPI Gundry 6"
#1317	Line 700

Based on the information you provided in your submission, the OSFM has "no objection" to your risk analysis or your initial implementation plan. According to Title 19 of the California Code of Regulations **§2113 – Implementation Plan**, an operator shall submit a detailed supplemental implementation plan within sixty (60) days of acceptance of the Risk Analysis.

If you have any questions regarding this issue, please contact Andy Chau, Supervising Pipeline Safety Engineer, at (562) 497-0366.

Sincerely,

DocuSigned by:
Jim Hosler
980F8D3AE95C42E...

JAMES HOSLER
Assistant Deputy Director
Chief of Pipeline Safety and CUPA Programs

cc: Andy Chau, OSFM, Supervising Pipeline Safety Engineer
Huy Nguyen, OSFM, Supervising Pipeline Safety Engineer
Brendan Feery, OSFM, Supervising Pipeline Safety Engineer
Doug Allen, OSFM, Supervising Pipeline Safety Engineer
Alin Podoreanu, OSFM, Supervising Pipeline Safety Engineer

Exhibit 2

Crimson Supplemental Implementation Plan

Crimson
Pipeline, LLC
a division of Crimson Midstream, LLC

February 28, 2022

James Hosler
Assistant Deputy Director
Chief of Pipeline Safety and CUPA Programs
Office of the State Fire Marshall
3780 Kilroy Airport Way, Suite 500
Long Beach, California 90806

SUBJECT: CRIMSON AB 864 SUPPLEMENTAL IMPLEMENTATION PLAN

Dear Mr. Hosler:

Please reference your December 30, 2021 letter under the subject heading "Coastal Best Available Technology (BAT) Acceptance of Risk Analysis and Initial Implementation Plan." Therein you advised that the OSFM had "no objection" to Crimson's Risk Analysis or Initial Implementation Plan dated October 7, 2021 and December 23, 2021. You also advised that according to Title 19, Section 2113 Implementation Plan of the California Code of Regulations, a Supplemental Implementation Plan ("Crimson Plan") is due within 60 days of your December 30, 2021 letter.

Crimson is pleased to submit the attached Crimson Plan dated February 28, 2022. Pursuant to Title 19, Section 2113, the Crimson Plan contains a timetable for implementation and completion, introductory material, and information relative to testing and training. The Crimson Plan incorporates by reference the Crimson Risk Analysis and Initial Implementation Plan noted above.

The Crimson Plan is comprised of 15 engineering projects and a discreet timetable for each of the 15 projects is shown in the attached Crimson Plan. Please note that a date later than April 1, 2023 is shown for some projects, as Crimson's experience with the associated regulatory permitting agencies indicates that permits for these projects will not be received by April 1, 2023. After applying for these project permits, Crimson will contact your office to discuss permitting and ways to accelerate the permitting process.

As always, we would be pleased to discuss our Crimson Plan with you at your convenience.

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this implementation plan is true and correct.

V. R. Jackson
Signature

Valerie Jackson, SVP Engineering & Regulatory Compliance

2/28/22
Date

Attachment:

OSFM AB 864 Supplemental Implementation Plan

Cc: PipelineNotification@fire.ca.gov
Andy Chau, OSFM, Supervising Pipeline Safety Engineer - Andy.Chau@fire.ca.gov
Huy Nguyen, OSFM, Supervising Pipeline Safety Engineer - Huy.Nguyen@fire.ca.gov
Brendan Feery, OSFM, Supervising Pipeline Safety Engineer - Brendan.Feery@fire.ca.gov
Doug Allen, OSFM, Supervising Pipeline Safety Engineer - Doug.Allen@fire.ca.gov
Alin Podoreanu, OSFM, Supervising Pipeline Safety Engineer – Alin.Podoreanu@fire.ca.gov

Crimson Pipeline L.P.

AB 864
SUPPLEMENTAL IMPLEMENTATION PLAN

Date Issued: 2/28/2022

Introduction

This AB 864 Supplemental Implementation Plan has been prepared pursuant to Title 19 of the California Code of Regulations, Section 2013 Implementation.

Please reference OSFM Assistant Deputy Director Mr. James Hosler's December 30, 2021 letter under the subject heading "Coastal Best Available Technology (BAT) Acceptance of Risk Analysis and Initial Implementation Plan." Therein Crimson was advised the OSFM had "no objection" to Crimson's Risk Analysis or Initial Implementation Plan dated October 7, 2021 and December 23, 2021. Crimson was also advised that according to Title 19, Section 2113 Implementation Plan of the California Code of Regulations, a Supplemental Implementation Plan ("Crimson Plan") is due within 60 days of the OSFM's December 30, 2021 letter.

Accordingly, the attached Crimson Plan dated February 28, 2022 has been prepared and submitted. Pursuant to Title 19, Section 2113, the Crimson Plan contains a timetable for implementation and completion, introductory material, and information relative to testing and training. The Crimson Plan incorporates by reference the Crimson Risk Analysis and Initial Implementation Plan noted above.

Contacts

Crimson Pipeline L.P.
David Blakeslee
(562) 285-4114
dblakeslee@crimsonpl.com

Valerie R. Jackson
(562) 285-4134
vjackson@crimsonpl.com

Legal Agent
Shayna Lloyd
CT Corporation
(800) 716-0507
EastTeam1@wolterskluwer.com

Purpose

The purpose of this Crimson Plan is to establish a schedule for implementing the Best Available Technology ("BAT") on pipelines as set forth in the Risk Analysis and Initial Implementation Plan submitted by Crimson L.P. ("Crimson) and accepted by the Office of the State Fire Marshall ("OSFM").

Scope

A listing of the projects associated with the implementation of BAT as noted above is shown in Table #1. Included in Table #1 are the preliminary scheduled dates for the following milestones set forth in Article 15, Section 2113:

- Purchase of equipment
- Acquisition of permits
- Securing qualified individuals for construction

Also included in Table #1 is the scheduled Implementation Date for each project.

The Crimson Plan is comprised of 15 distinct projects, each of which has project scope for the installation of BAT. Installation of BAT will encompass project work involving twenty-six (26) OSFM numbered pipelines located in numerous California municipalities.

There are three types of projects is this Crimson Plan comprised of:

- Construction of new Moto of new underground pipeline vaults and installation of new Motor Operated Valves ("MOV") on the pipeline,
- Installation of new Motor Operators on existing pipeline valves, and
- Installation of Atmos Leak Detection Systems on the pipelines.

Note: Most pipeline valves are opened or closed manually. Some valves are called Motor Operated Valves (MOVs) when an electrically powered mechanical device called a Motor Operator is installed on the valve. This Motor Operator allows Crimson to open or close the valve at a remote location, which is a Crimson Control Center that is staffed 24/7.

Atmos Leak Detection Systems continuously monitor the pipeline pressure and flow rates during pipeline operation. The Atmos software is programmed to alert the Control Room Operator of any unexpected changes in pipeline pressure or flowrate. This provides the opportunity for the Operator the opportunity to begin immediate actions to shut down the pipeline if a leak is suspected. Thus, the size of a potential leak can be minimized.

Schedule

Preliminary implementation schedules have been developed for each of the BAT Implementation Projects as shown in Table #1. These preliminary schedules are subject to change pending Crimson completion of Constructability and Engineering, determination of jurisdictional permitting requirements and timing, and identification, if any, of unforeseen conditions. Schedules for these projects are shown in the following Tables:

- Table #2 – High Level Schedule for Vault Projects
- Table #3 – High Level Schedule for MOV Projects
- Table #4 – High Level Schedule for Integrity Projects

Please note that a date later than April 1, 2023 is shown for completion of some projects, as Crimson's experience with the associated regulatory permitting agencies indicates that permits for these projects

will not be received by April 1, 2023. After applying for these project permits, Crimson will contact the OSFM to discuss permitting issues and ways to accelerate the permitting process.

The Schedules on Tables #2, #3, on #4 show estimated time frames for several Key Schedule Elements associated with standard Project Engineering processes. These Key Schedule Elements include:

- AB 864 Supplemental Implementation Plan – Includes Crimson Plan preparation
- Constructability & Engineering – Includes
  - Availability of ROW and/or easements needed for equipment installation and operation
- Permitting – Includes the following permits:
  - Building Permits, Plan Check and Other Regulatory Agencies Requirements
  - Public Electrical Utility Permits
  - Regulatory Agency Traffic Control Permits
- Atmos & Scada Programming
- Procurement & Contracting
  - Bidding Process for Materials & Labor
  - Purchase and Delivery of Materials
  - Construction Contracts
- Construction
- Training, Testing & Implementation
  - Employee Training
  - Equipment Testing
  - Project Completion

Training & Testing Requirements

All modifications to Crimson's equipment and/or procedures are covered by Crimsons existing Management of Change ("MOC") processes. Completion of required changes to Crimson's training and testing procedures are required to be verified by the MOC process prior to completion of project implementation.

Training procedures for Crimson and contractor personnel will be modified in accordance with Article 15, Section 2116 Training Procedures. Training objectives will address potential concerns associated with utilizing BAT identified in the Risk Analysis.

Testing procedures for BAT installed on pipelines will be modified in accordance with Article 15, Section 2115 Testing Requirements and Test Failures. Testing requirements will be modified to include provisions for OSFM notification of applicable failures involving BAT.

TABLE #1 -- HIGH LEVEL ATTRIBUTES FOR VAULT, MOV, AND INTEGRITY PROJECTS

PROJECT NAME	PROJECT TYPE	CITY	PERMITTING JURISDICTION(S)	PERMITTING TIME	MILESTONES			
					EQUIP	PERMIT	CONST	DONE
OSFM #1299 Inglewood 8" & 12" Crude Oil Line	VAULT	Inglewood	Inglewood / LA City	2 - 4 YEARS	03/31/24	03/31/24	12/21/24	12/21/24
OSFM #0460 Harbor Station to V-10 Line 600	VAULT	Ventura	Ventura County	1 - 2 YEARS	06/30/23	06/30/23	03/31/24	03/31/24
OSFM #0339 Brea Crude Line 700	MOV	Whittier	Whittier	6 MONTHS	11/15/22	11/15/22	02/15/22	02/15/22
OSFM #0867 Sulphur Crest	MOV	Santa Paula	Ventura County	1 - 2 YEARS	06/30/23	06/30/23	09/30/23	09/30/23
OSFM #0047 Seal Beach to New York Junction	MOV	Long Beach	Long Beach	1 - 2 YEARS	06/30/23	06/30/23	09/30/23	09/30/23
OSFM #0334 Ventura 10" Crude Pipeline	MOV	Santa Monica	Santa Monica	6 MONTHS	11/30/22	11/30/22	02/28/23	02/28/23
OSFM #0858 Richfield to Sterns	MOV	Placentia	Placentia	6 MONTHS	12/15/22	12/15/22	03/15/23	03/15/23
OSFM #0460 Line 600D Ventura to Santa Paula	MOV	Santa Paula	Ventura County	1 - 2 YEARS	09/30/23	09/30/23	12/31/23	12/31/23
OSFM #0825 CRC Huntington Beach to Garfield Junction	MOV	Garden Grove	Garden Grove	6 MONTHS	12/31/23	12/31/23	03/31/23	03/31/23
OSFM #0415 THUMS 8"	MOV	Wilmington	POLB / LA City / Joint Port	2 - 4 YEARS	12/31/23	12/31/23	03/31/23	03/31/23
OSFM #0459 Torrey to Santa Paula	ATMOS	TBD	TBD	2 MONTHS	08/31/22	10/15/22	11/30/22	12/31/22
OSFM #0708 Tracy to Avon	ATMOS	TBD	TBD	2 MONTHS	09/15/22	10/31/22	12/15/22	01/15/23
OSFM #0709 Avon to Martinez	ATMOS	TBD	TBD	2 MONTHS	09/30/22	11/15/22	12/31/22	01/31/23
OSFM #0796 Gustine to Tracy	ATMOS	TBD	TBD	2 MONTHS	10/15/22	11/31/2022	01/15/23	02/15/23
East Crude System (See Note Below)	ATMOS	TBD	TBD	2 MONTHS	10/31/22	12/15/22	01/31/23	02/28/15

Note: The East Crude System is comprised of the following pipelines:

- OSFM 0339 Brea Crude Line 700
- OSFM 0447 East Crude Line 700A2
- OSFM 0458 East Crude Line 700A1
- OSFM 0786 East Crude Line 700
- OSFM 0852 Butler Road Line
- OSFM 0854 West Naranjal
- OSFM 0855 A Gathering Sterns to Stewart
- OSFM 0857 Redu Gathering
- OSFM 0858 Richfield to Sterns
- OSFM 1307 SHPI Gundry 6"
- OSFM 1317 Line 700

TABLE #2 -- HIGH LEVEL SCHEDULE FOR VAULT PROJECTS

PROJECT NAME	PROJECT TYPE	2022												2023						2024			
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	Q2	Q3	Q4	Q1	Q2	Q3	Q4
OSFM #1299 Inglewood 8" & 12" Crude Oil Line	VAULT	PLAN		ENGINEERING															BUY	BUILD			
						PERMITTING (2 TO 4 YEARS)																	TEST
OSFM #0460 Harbor Station to V-10 Line 600	VAULT	PLAN		ENGINEERING														BUY		BUILD			
						PERMITTING (1 -2 YEARS)															TEST		

TABLE #3 -- HIGH LEVEL SCHEDULE FOR MOV PROJECTS

PROJECT NAME	PROJECT TYPE	2022 J	F	M	A	M	J	J	A	S	O	N	D	2023 J	F	M	Q2	Q3	Q4	2024 Q1	Q2	Q3	Q4
OSFM #0339 Brea Crude Line 700	MOV	PLAN			ENGINEERING						BUY		BUILD										
							PERMITTING							TEST									
OSFM #0867 Sulphur Crest	MOV	PLAN			ENGINEERING						BUY		BUILD				BUY	BLD.					
							PERMITTING (1-2 YEARS)											TEST					
OSFM #0047 Seal Beach to New York Junction	MOV	PLAN			ENGINEERING						BUY		BUILD				BUY	BLD.					
							PERMITTING (1-2 YEARS)											TEST					
OSFM #0334 Ventura 10" Crude Pipeline	MOV	PLAN			ENGINEERING						BUY		BUILD										
							PERMITTING							TEST									
OSFM #0858 Richfield to Sterns	MOV	PLAN				ENGINEERING					BUY		BUILD										
							PERMITTING							TEST									
OSFM #0460 Line 600D Ventura to Santa Paula	MOV	PLAN				ENGINEERING												BUY	BLD.				
							PERMITTING (1-2 YEARS)												TEST				
OSFM #0825 CRC Huntington Beach to Garfield Junction	MOV	PLAN					ENGINEERING				BUY		BUILD										
								PERMITTING						TEST									
OSFM #0415 THUMS 8"	MOV	PLAN					ENGINEERING				BUY		BUILD										
								PERMITTING						TEST									

TABLE #4 -- HIGH LEVEL SCHEDULE FOR INTEGRITY PROJECTS

PROJECT NAME	PROJECT TYPE	2022 J	F	M	A	M	J	J	A	S	O	N	D	2023 J	F	M	Q2	Q3	Q4	2024 Q1	Q2	Q3	Q4
OSFM #0459 Torrey to Santa Paula	ATMOS	PLAN				ENGR		ATMOS & SCADA PROGRAMMING															
								PERMIT		BUY		BUILD	TEST										
OSFM #0708 Tracy to Avon	ATMOS	PLAN				ENGR		ATMOS & SCADA PROGRAMMING															
								PERMIT		BUY		BUILD	TEST										
OSFM #0709 Avon to Martinez	ATMOS	PLAN				ENGR		ATMOS & SCADA PROGRAMMING															
								PERMIT		BUY		BUILD	TEST										
OSFM #0796 Gustine to Tracy	ATMOS	PLAN				ENGR		ATMOS & SCADA PROGRAMMING															
								PERMIT		BUY		BUILD	TEST										
East Crude System (See Note on Table #1)	ATMOS	PLAN				ENGR		ATMOS & SCADA PROGRAMMING															
								PERMIT		BUY		BUILD	TEST										

Exhibit 3

CBAT Pipeline Risk Analysis Report

(Ventura 10-inch Pipeline)

CBAT Pipeline Risk Analysis Report

Crimson Pipeline L.P

OPID 32103

CSFM ID #334 – Ventura 10

Submission Date – October 7, 2021

Certification Statement

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Print Name: Valerie R. Jackson

Title: Vice President, Engineering and Compliance

Signed:

Date: October 7, 2021

Integrity Solutions® Ltd assisted Crimson Pipeline L.P. in compiling and analyzing the data presented herein; however, final decisions are made by Crimson Pipeline L.P.

List of Contacts

Crimson Pipeline L.P.

David Blakeslee
(562) 285-4114
dblakeslee@crimsonpl.com

Valerie R. Jackson
(562) 285-4134
vjackson@crimsonpl.com

Legal Agent

Shayna Lloyd
CT Corporation
(800) 716-0507
EastTeam1@wolterskluwer.com

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Introduction

As a response to a 2015 release of crude oil near Refugio Beach in Santa Barbara, California, Assembly Bill 864 (AB 864) was signed into law. The main goal of the bill is to protect environmentally and ecologically sensitive areas (EESAs) such as state waters and wildlife by reducing the amount of hazardous liquid that could be released in the event of a spill. AB 864 adopts regulations that would require the evaluation and installation of the best available technology (BAT) for spill prevention on new, replacement, and existing intrastate pipelines near EESAs in the coastal zone. As AB 864 could be used for future assembly bills, this regulation will be referred to hereafter as CBAT.

Specifically, CBAT applies to pipelines under the jurisdiction of the California Office of the State Fire Marshal (CalFire) that 1) directly intersect or are within 0.5 mile of an EESA in the coastal zone or 2) indirectly impact an EESA where a spill analysis (spill vector) shows potential impact to an EESA in the coastal zone.

CBAT requires a process that incorporates risk and spill modeling for comparing the baseline or current configuration of a pipeline against selected pipeline scenarios for potential emergency flow-restriction device (EFRD) placement and/or leak detection parameters. This requires the evaluation of BAT for pipeline spill prevention based on operational parameters and product delivered.

Per CBAT §2108, certain timing for compliance and prioritization of pipeline retrofits are set forth as follows:

- May 1, 2021: any new or replacement pipeline near an environmentally and ecologically sensitive area in the coastal zone shall use BAT.
- October 1, 2021: an operator of an existing pipeline located near an environmentally and ecologically sensitive area in the coastal zone shall submit a risk analysis and a plan to retrofit existing pipelines with the BAT.
- December 1, 2021: an operator of an existing pipeline located near an environmentally and ecologically sensitive area in the coastal zone shall submit a detailed supplemental implementation plan.
- April 1, 2023: an operator of an existing pipeline located near an environmentally and ecologically sensitive area in the coastal zone shall complete retrofit of existing pipelines with the BAT.

Pipeline retrofits are to be prioritized by the operator and should consider:

- Pipelines posing a higher risk to EESAs.
- Pipelines in the coastal zone.
- Pipelines located inland from the coastal zone that pose a more immediate retrofit priority due to a higher potential to impact or result in greater harm to EESAs over other pipelines.

Purpose

The purpose of this report is to document the evaluation of the potential BATs to determine their spill and risk-reduction effectiveness. Additional requirements include an initial implementation plan of selected BAT and a supplemental implementation plan that details testing and training of qualified personnel which will be developed once selected BAT is approved.

Scope

The scope of this analysis includes the CSFM #334 Ventura 10 pipeline located near Lakewood, California.

The information contained in this analysis uses Crimson Pipeline L.P. (Crimson) integrity management program (IMP) and risk analysis practices to identify threats to the pipeline integrity and the consequences related to an unintended release of product for evaluation of leak detection technology and feasibility. The CBAT risk analysis process, as described and documented in this report, is specific to the CSFM #334 Ventura 10 pipeline.

Methodology

Process Steps

The CBAT risk analysis includes the following process steps, which address the required elements of the CBAT as detailed in the following sections:

1. Pipeline Evaluation
    a. System Description – with vicinity map(s) outlining physical geographic features, integrity assessments, etc.
    b. Piping and Instrumentation Diagram (P&ID)
    c. Climatic and Hydrographic Conditions
2. Baseline Spill Analysis
    a. Pipeline Gash Scenario
    b. Baseline Spill Volume Results
    c. Baseline Spill and Risk Analysis
3. BAT Evaluation
    a. BAT Definition and Determination
    b. Industry-Standard Leak Detection Methods
    c. Evaluation of Current Systems and Potential Enhancements
4. Final BAT Selection
5. Implementation Plan

CBAT Requirements

Table 1 cross-references the CBAT analysis requirements with the location(s) of each requirement in this risk analysis report.

Table 1: CBAT Risk Analysis Cross-Reference

CBAT §2111	Brief Description	Location in Report
(a)	Operators are required to submit a risk analysis to the State Fire Marshal considering, at a minimum, the BAT requirements in §2019 and requirements of this Article.	Entire document
(b)	Operators must also submit an initial Implementation Plan that outlines the time frame to implement the proposed best available technologies with the risk analysis	Implementation Plan
(c)	Operators shall provide the following information in the risk analysis:	----
(c)(1)	Introductory Material:	----
(c)(1)(A)	Name of the operator, State Fire Marshal pipeline ID number, and mailing address if different.	Cover Page
(c)(1)(B)	A certification statement signed under penalty of perjury by an executive within management authorized to fully implement the risk analysis, who shall review the documents for accuracy, effectiveness, and feasibility.	Page ii
(c)(1)(C)	Include a list of contacts and contact information for persons within the operator's company, and any alternates, responsible for overseeing and conducting the risk analysis.	Page iii
(c)(1)(D)	Provide the name, address, and telephone number for an agent for service of process designated to receive legal documents on behalf of the operator.	Page iii
(c)(2)	Pipeline Description	----
(c)(2)(A)	Each risk analysis shall describe and consider the pipeline design and operations with specific attention to environmentally and ecologically sensitive areas. This description and consideration shall include, at a minimum, the following information:	----
(c)(2)(A)(1)	A piping and instrumentation diagram, …; the number, and oil capacity of each pipeline covered under the risk analysis and its age, design ... and the distance between the isolation points.	Appendix A; System Description
(c)(2)(A)(2)	Vicinity maps showing any vehicular or rail crossings along the pipeline, nearby residential, commercial, or other populated areas;	System Description
(c)(2)(A)(3)	Seasonal hydrographic and climatic conditions	Climatic and Hydrographic Conditions

CBAT §2111	Brief Description	Location in Report
(c)(2)(A)(4)	Physical geographic features ... and any other physical feature or peculiarity of local geography that call for special precautionary measures that may affect environmentally and ecologically sensitive areas.	Baseline Spill Analysis
(c)(3)	A summary of the risk analysis shall be included and must describe the method used in the risk analysis, and a statement that the analysis is specific to the pipeline.	Baseline Spill Analysis
(c)(4)	The operator must conduct a spill analysis to determine the consequences of a potential release ... The spill analysis must be summarized in the risk analysis and shall include at least the following:	Baseline Spill Analysis
(c)(4)(A)	A trajectory, or series of trajectories … to determine the potential direction, rate of flow and time of travel of the reasonable worst-case discharge…	Baseline Spill Analysis
(c)(4)(B)	To calculate the reasonable worst-case discharge, operators must consider whether the release is from an on-shore pipeline or an off-shore pipeline.	Baseline Spill Analysis
(c)(4)(B)(1)	For onshore pipelines, the reasonable worst-case discharge is the largest volume in barrels of the following:	----
(c)(4)(B)(1)(a)	The pipeline's maximum release time in hours ..., plus the maximum shut-down response time in hours ..., multiplied by the maximum flow rate ..., plus the largest line drainage volume ...; or	Baseline Spill Volume Results
(c)(4)(B)(1)(b)	The largest foreseeable discharge for the line section(s) near environmentally and ecologically sensitive areas, ..., adjusted for any subsequent corrective or preventive action taken; or	Baseline Spill Volume Results
(c)(4)(B)(2)	For offshore pipelines, the reasonable worst-case discharge is the largest volume in barrels of the following calculation:	N/A
(c)(4)(B)(2)(a)	The pipeline system leak detection time, … Add to this calculation the total volume of oil that would leak from the pipeline after it is shut in.	N/A
(c)(4)(C)	The operator's approach for analyzing the spill analysis ... shall consider the following elements:	----
(c)(4)(C)(1)	proximity to water crossings	Baseline Spill Analysis
(c)(4)(C)(2)	variations in topography near the pipeline	Baseline Spill Analysis
(c)(4)(C)(3)	variations in distance between the pipeline and the environmentally and ecologically sensitive area	Baseline Spill Analysis
(c)(4)(C)(4)	adequate choice of release locations	Baseline Spill Analysis

CBAT §2111	Brief Description	Location in Report
(c)(4)(C)(5)	failure type or size (e.g. catastrophic failure)	Baseline Spill Analysis
(c)(4)(C)(6)	operating conditions (e.g., flow rate, operating pressure)	Baseline Spill Analysis
(c)(4)(C)(7)	leak detection and response time	Baseline Spill Analysis
(c)(4)(C)(8)	calculations of drain down following leak or rupture	Baseline Spill Analysis
(c)(4)(C)(9)	release rates, if air dispersion is possible in the operator's system	Baseline Spill Analysis
(c)(4)(C)(10)	pipeline system design factors (e.g., pipe diameter, distance between isolation valves, location of tanks ...)	Baseline Spill Analysis
(c)(4)(C)(11)	existing leak detection systems, automatic shutoff systems, remote controlled sectionalized block valves, computational pipeline monitoring, and emergency flow restricting device.	Baseline Spill Analysis
(c)(4)(D)	Where a reasonable worst-case discharge could affect a waterway, the operator shall consider:	----
(c)(4)(D)(1)	waterway conditions	Baseline Spill Analysis
(c)(4)(D)(2)	flow characteristics	Baseline Spill Analysis
(c)(4)(D)(3)	water properties and water transport consequences	Baseline Spill Analysis
(c)(4)(D)(4)	changes in commodity properties due to interaction with the environment	Baseline Spill Analysis
(c)(4)(D)(5)	commodity solubility; and	Baseline Spill Analysis
(c)(4)(D)(6)	abnormal stream conditions such as flood or storm conditions	Baseline Spill Analysis
(c)(4)(E)	The calculations, and such parameters as flow rates, line fill capacities and emergency shutoff times, that are used to determine a pipeline's reasonable worst-case discharge ...	Pipeline Gash Scenario
(c)(5)	Describe how the BAT identified will provide the greatest degree of protection by limiting the quantity of release in the event of a spill.	Evaluation of Current Systems and Potential Enhancements; Final BAT Selection
(c)(6)	Provide for training and testing on BAT used, based on the requirements of §2116 (Training Requirements) and §2115 (Testing Requirements and Test Failures).	To Be Developed Upon BAT Acceptance

Pipeline Evaluation

System Description

Per §2111, required information to be included for the pipeline in the CBAT analysis is as follows:

- Pipeline age
- Design, and known design defects
- Construction and general condition
- Range of oil products normally shipped in the pipeline
- Nature and characteristics of the product the pipeline is transporting
- Physical support of the pipeline segment, such as by a cable suspension bridge
- Operating conditions of the pipeline
- Hydraulic gradient of the pipeline
- Presence or absence of containment structures
- Capacity of the pipeline
- Diameter of the pipeline
- Material and manufacturing information and seam type
- Potential release volume
- Distance between the isolation points
- Vehicular or rail crossings along the pipeline
- Nearby residential, commercial, or other populated areas
- Environmental and ecologically sensitive areas (from spill analysis)
- Soil type and environment
- Right-of-way activity
- Assessment information

Table 2 summarizes the general pipeline specifications.

Table 2: General Pipeline Description

CBAT Required Element	Description
A piping and instrumentation diagram, and a tank diagram including the location of pumps, valves, vents and lines	Ref. *Piping and Instrumentation Diagram* section and *Appendix A*
Number of Pipelines	1 - CSFM ID 334
Pipeline Oil Capacity	2,010 bph
Direction of Flow	North to South
Pipeline Age	1941
Pipeline Design	Length: 85.97 miles Diameter: 10.75" Wall Thickness: 0.219", 0.250", 0.279", 0.307", 0.365", 0.438", 0.500" Material Grade: B, X-42 and X-52 Seam Type: SMLS and ERW Coating Type: Somastic, X-Tru, Pritec, Polyethylene, 10/40 Pritec, Canusa Wrap, X-Tru Coat
Known Design Defects	None
Construction and General Condition	Good: Ref: 7/1/2015 In-line Inspection Report
Range of Products and Characteristics	Crude Oil
Physical Supports	Above ground spans
Operating Conditions	Pumping Pressure: 1,200 psi (62% SMYS)
Hydraulic Gradient	Refer to baseline spill volume analysis
Containment Structures	Various catch basins along pipeline route
Potential Release Volume	134 bbls (Initial) / 2,531 bbls (Stabilization); Ref. *Spill Analysis* section
Max Distance between Isolation Points	13.64 miles

The pipeline transports product from Ventura to refineries in the Los Angeles Basin. Product flow is constant; however, the pipeline is placed in static mode at least once per day (anywhere from 15 minutes to 15 hours).

The pipeline is located primarily below ground in public rights-of-way with five above ground spans.

The pipeline is considered high stress (74% SMYS) and has a maximum operating pressure (MOP) of 1,440 psig.

Figure 1 and Figure 2 are vicinity maps showing road and rail crossings along the pipeline, in addition to nearby residential, commercial, or other populated areas. Figure 1 is an aerial view of the pipeline route, which shows rail crossings and major roads defined by the Federal Highway Administration as interstates, major and minor arterials, and collectors.

Figure 1: CSFM #334 Ventura 10 Pipeline Route

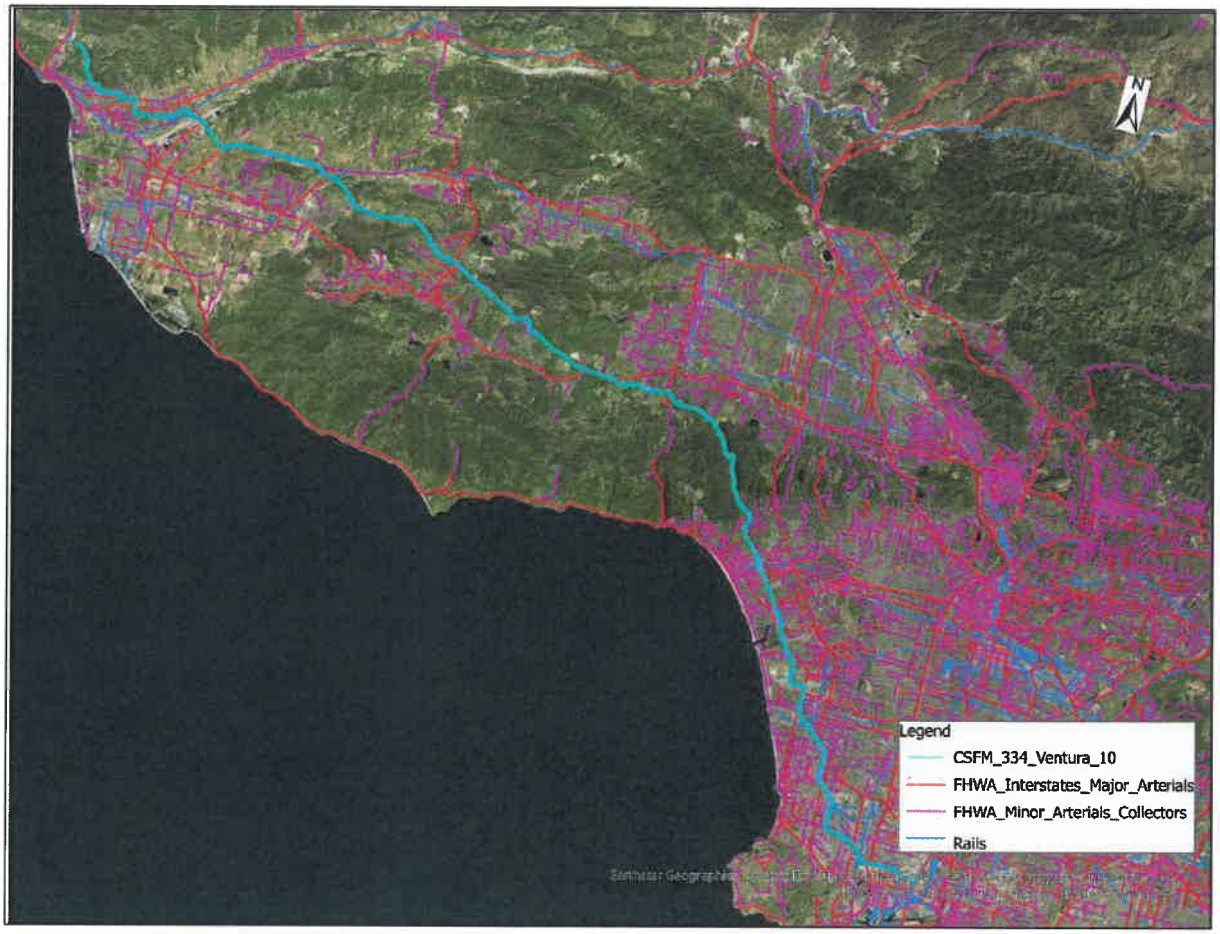


Figure 2 is another aerial view of the pipeline route showing the proximity of the pipeline to the NPMS-defined high population area (HPA) and other populated area (OPA) high consequence area (HCA) types. The pipeline has the potential to affect both an HPA and OPA.

Figure 2: CSFM #334 Ventura 10 Pipeline Proximity to HPAs/OPAs

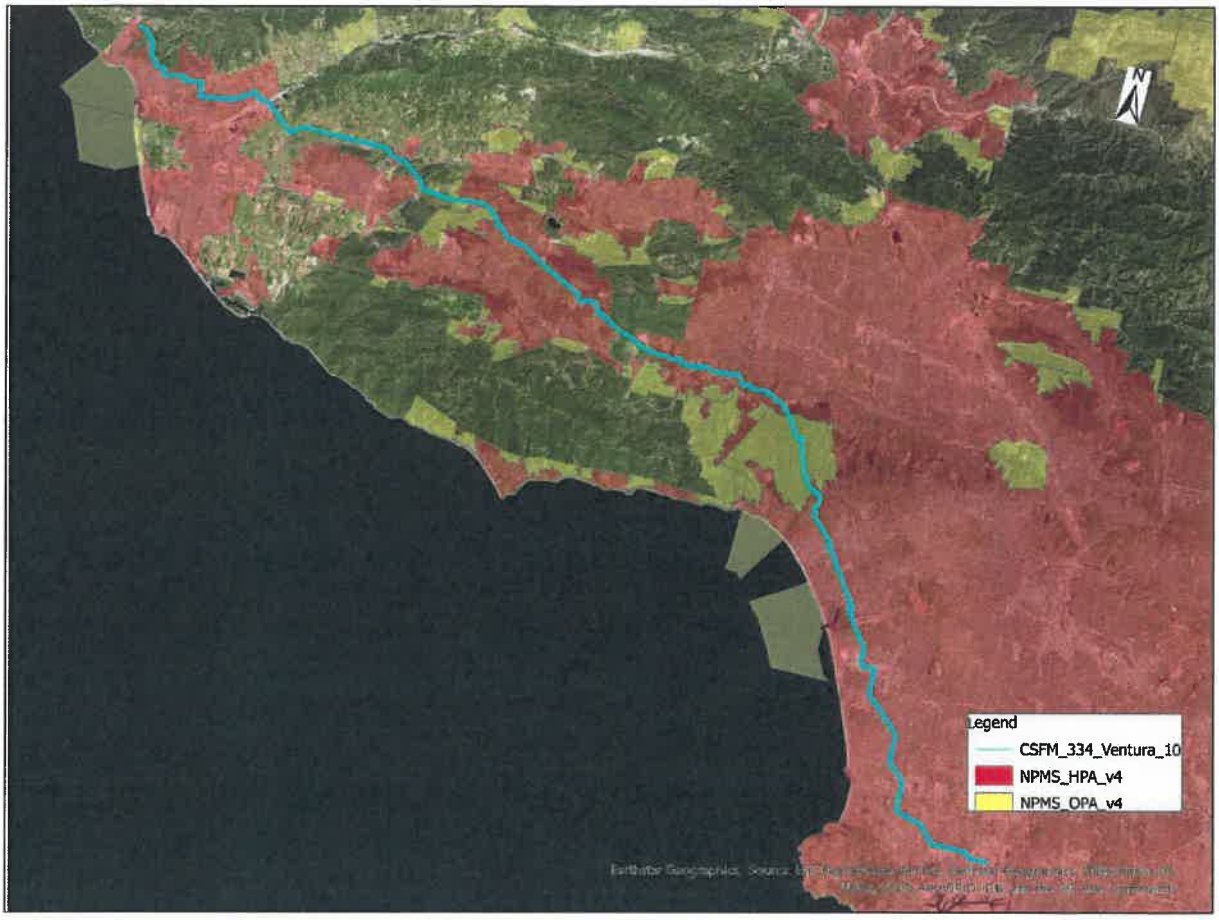


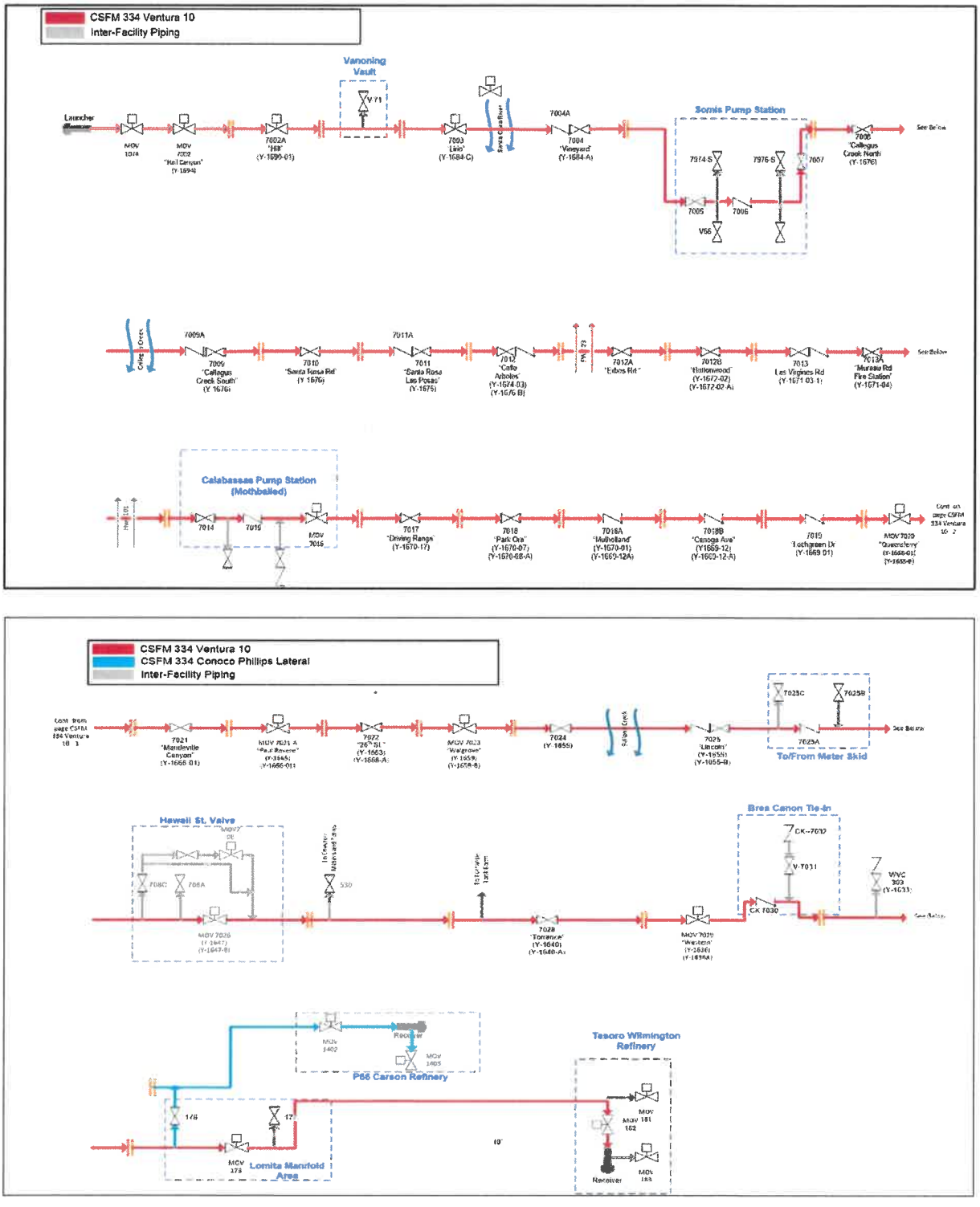
Figure 3 shows the pipeline and its proximity to the EESAs. Segments of the pipeline can directly impact an EESA. The spill modeling, outlined below, will determine the pipeline's ability to indirectly affect an EESA through overland spread and/or watershed impact.

Figure 3: CSFM #334 Ventura 10 Pipeline Proximity to EESAs

Piping and Instrumentation Diagram

Figure 4 shows a simplified pipeline process drawing of the current operational configuration of the pipeline including any significant operating devices and appurtenances. Figures showing additional detail are provided in Appendix A.

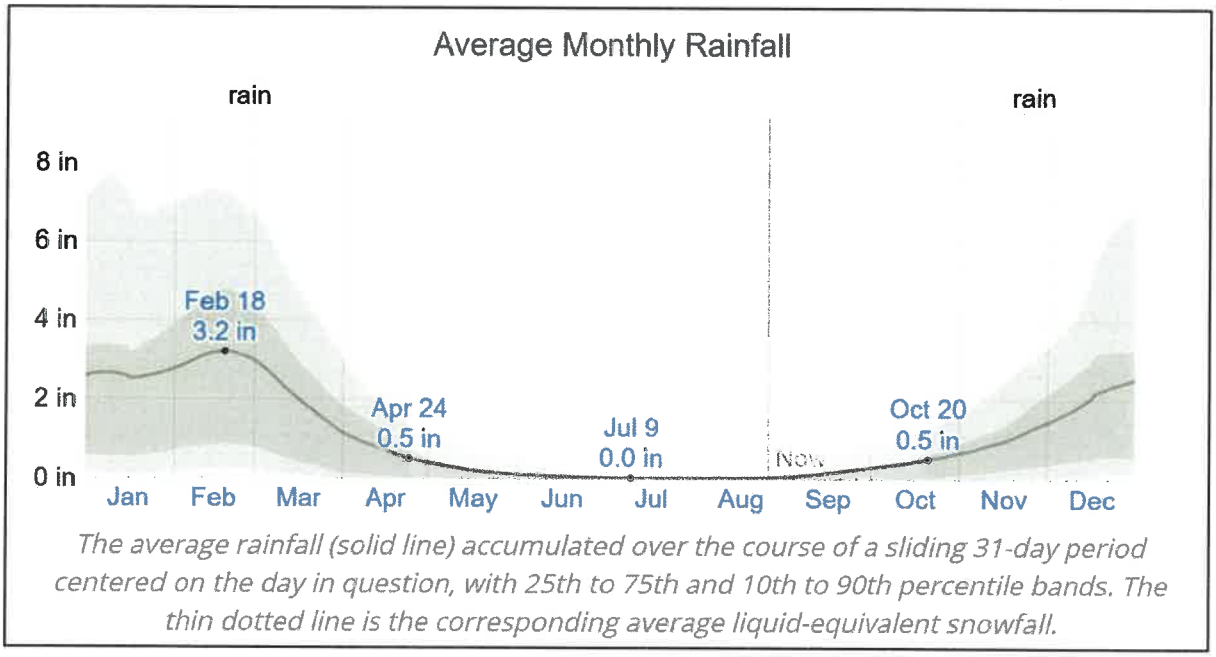
Figure 4: CSFM #334 Ventura 10 Pipeline Simplified P&ID (Current Configuration)



Climatic and Hydrographic Conditions

The prevailing climatic and hydrographic conditions at the time of a spill can influence a variety of response factors. Data provided by *WeatherSpark.com* calculates rainfall accumulated over a sliding 31-day period centered around each day of the year. The Long Beach area experiences significant seasonal variation in monthly rainfall. The rainy period of the year lasts for 6.1 months, from October 20 to April 24, with a sliding 31-day rainfall of at least 0.5 inches. The most rain falls during the 31 days centered around February 18, with an average total accumulation of 3.2 inches. The rainless period of the year lasts for 5.9 months, from April 24 to October 20. The least rain falls around July 9, with an average total accumulation of 0.0 inches. Figure 5 is a graphical representation of the average monthly rainfall for the Long Beach area.

Figure 5: Long Beach, CA Rainfall Information (WeatherSpark.com)



The average rainfall (solid line) accumulated over the course of a sliding 31-day period centered on the day in question, with 25th to 75th and 10th to 90th percentile bands. The thin dotted line is the corresponding average liquid-equivalent snowfall.

The entirety of the pipeline is located onshore; however, releases along most of the pipeline would reach the Pacific Ocean in the event of a spill regardless of rainfall potential. Climatic conditions could hinder the recovery efforts in any event.

Baseline Spill Analysis

Per CBAT, *the operator must conduct a spill analysis to determine the consequences of a potential release. The spill analysis shall assume adverse environmental conditions such that the worst possible dispersion of oil will be considered*. This spill analysis is intended to be used as the baseline for which best available technologies may be used to reduce the quantity of release in the event of a release.

Crimson conducted a spill analysis for the pipeline, which determined *a trajectory, or series of trajectories (for multiple environmentally and ecologically sensitive areas, multiple release locations, etc.), to determine the potential direction, rate of flow and time of travel of the*

reasonable worst-case discharge from the pipeline to environmentally and ecologically sensitive areas that could be affected.

The approach for analyzing the spill analysis and the potential effects of a pipeline failure that could affect an environmentally and ecologically sensitive area shall consider the following elements:

- Seasonal hydrographic and climatic conditions
- Physical geographic features, including type of soil and terrain
- Drainage systems such as small streams and other smaller waterways that could serve as a conduit to an environmentally and ecologically sensitive area
- Roadway crossings and ditches
- Potential natural forces inherent in the area
- Natural and manmade barriers
- Potential physical pathways between the pipeline and environmentally and ecologically sensitive areas
- Any other physical feature or peculiarity of local geography that call for special precautionary measures that may affect environmentally and ecologically sensitive areas

Crimson's approach for analyzing the spill analysis and the potential effects of a pipeline failure that could affect an environmentally and ecologically sensitive area shall consider the following elements:

- Proximity to water crossings
  - The geographical information system (GIS) datasets used in this study, including U.S. Geological Survey (USGS) National Elevation Dataset (NED) and the National Hydrography Dataset (NHD), account for the impact that water crossings have on a release.
- Variations in topography near the pipeline
  - The GIS datasets used in this study, including USGS NED and the stream and lake datasets, account for the impact that surrounding terrain has on an overland and overwater release.
- Variations in distance between the pipeline and the environmentally and ecologically sensitive area
  - The spatial spill analyses, including immediate impact, potential liquid migration impact and watershed impact, account for the varied distance between the pipeline and EESAs.
- Adequate choice of release locations
  - A release point was modeled at 100 ft increments along the pipeline, in addition to the beginning and end points of the pipeline and at all water crossings.
- Failure type or size (e.g., catastrophic failure)
  - Crimson calculates worst-case release volumes based on a gash dimension of 12 in. x ¼ in as detailed below.
- Operating conditions (e.g., flow rate, operating pressure)
  - Operating conditions are accounted for during the initial release stage of the drain-down model used in this study.
- Leak detection and response time

- Leak detection and response time are accounted for during the initial release stage of the drain-down model used in this study.

- Calculations of drain down following leak or rupture
  - The worst-case release volume consists of the amount of liquid that could be released before pump shutdown and valve isolation (initial release), plus the amount of liquid that could drain out due the remaining elevation head (stabilization volume).
- Release rates if air dispersion is possible in the operator's system
  - Not applicable for this pipeline.
- Pipeline system design factors (e.g., pipe diameter, distance between isolation valves, location of tanks and other facilities)
  - Design factors are accounted for in the initial release and stabilization volume calculations.
- Existing leak detection systems, automatic shutoff systems, remote controlled sectionalized block valves, computational pipeline monitoring, and emergency flow restricting device.
  - Existing systems are accounted for in the worst-case release volume calculations.

Where a reasonable worst-case discharge could affect a waterway, the operator shall consider:

- Waterway conditions
- Flow characteristics
- Water properties and water transport consequences
- Changes in commodity properties due to interaction with the environment
- Commodity solubility
- Abnormal stream conditions such as flood or storm conditions

For the baseline spill analysis, Crimson provided the worst-case discharge (WCD) volume for an unintended release based on a 12 in. × ¼ in. gash. The WCD is the total of the volume released prior to shutdown and the maximum drain down after shutdown. For details on these calculations, see Crimson's *CA Worst Case Discharge Calculations SoCal and Roadrunner* spreadsheet.

Pipeline Gash Scenario

For the CBAT calculation, Crimson used the same methodology that is used for its WCD calculations that are required under PHMSA regulations. The pipeline rupture scenario evaluates the impact of a large-volume release detectable by the pipeline's leak detection system. This method assumes a worst-case, 12 in. × ¼ in. gash rupture of the pipe. Crimson uses the gash calculation because it represents the most likely leak event which is a third-party hit on the line. Equation 1 is the formula for calculating the potential rupture volumes for hazardous liquid pipeline systems.

Equation 1: Release Volume Due to Rupture

$$V_r = V_i + V_s$$

Where:

V_r = Maximum total volume loss (bbl) released due to rupture
V_i = Maximum initial volume loss (bbl), per Equation 2
V_s = Maximum stabilization volume loss (bbl), per Equation 5

Maximum initial volume loss is calculated as shown in Equation 2, based on operating pump pressure and isolation time data provided by Crimson and specific to the pipeline.

Equation 2: Initial Volume Loss (Gash)

$$V_i = R_f \times T_r$$

Where:

- V_i = Maximum initial volume loss (bbl)
- R_f = Initial release rate (bbl/hr), per Equation 3
- T_r = Time (min) to recognize a rupture event and isolate the point of release (either close valves on both sides of the rupture or shut down pumps).
  Crimson assumes a total of 20 minutes for this number—15 minutes to identify the leak and 5 minutes to shut down the pumps and close all automated isolation valves.

Equation 3: Initial Release Rate Due to Gash

$$Rf = G99 * \left(\left(\frac{I7}{144}\right) * SQRT\left(2 * \frac{ABS(E7 - 14.7) * 144}{53.1}\right) * 641.14286\right)$$

Where:

- R_f = Initial release rate (bbl/hr)
- G99 = Constant discharge coefficient based on pipe size for a gash leak. This ranges from 0.429 for 4/6 inch pipe to 0.31 for a 20 inch pipe.
- I7 = Gash Dimension 3.00 Sq. Inches
- E7 = Gauge pressure at gash (psi)
  The other numbers are constants that are used to provide the conversion to a leak rate in Barrels/Hour.

The initial release rate is constant for most pipe segments. In some longer pipe sections, it is adjusted for the distance of the leak site from the origin pump station location.

Stabilization volume is the amount of liquid between isolation points at standard atmospheric conditions that will drain out of the pipeline, limited to a maximum drain-down time of 24 hours or the time to drain the entire segment, whichever is less. Crimson uses this 24-hour limit based on the assumption that within that time period, mitigating measures such applying temporary clamps, building berms, etc. would be taken to limit the leak duration.

Maximum drain-down time is based on the assumption that Crimson can implement actions per the emergency response plan to limit the impact of a spill. The maximum stabilization volume loss is calculated, as shown in Equation 4, as the sum of all drain-down volumes from upstream and downstream sections that are above the release point, either to an isolation point or a point of maximum elevation. Maximum drain-down volume is computed by finding the inside volume of the drain-down section. This is based on a standard barrel per foot of line multiplied times the length of the section.

Once total drain-down time is determined, the leak rate can be calculated.

Equation 4: Maximum Stabilization Leak Rate

$$Rs = G99 * \left(\left(\frac{I7}{144} \right) * SQRT \left(2 * \frac{ABS(E7 - 14.7) * 144}{53.1} \right) * 641.14286 \right)$$

Where:

R_s	=	Maximum stabilization leak rate (bbl/hr)
$G99$	=	Constant discharge coefficient based on pipe size for a gash leak. This ranges from 0.429 for 4/6 inch pipe to 0.31 for a 20 inch pipe.
I7	=	Gash Dimension 3.00 Sq. Inches
$E7$	=	Head pressure at gash (psi) based on maximum elevation difference across the segment. The other numbers are constants that are used to provide the conversion to a leak rate in bbl/hr.

Using the result from Equation 4, maximum stabilization volume loss is calculated as a function of time as follows:

Equation 5: Maximum Stabilization Volume

$$V_s = R_s \times T$$

Where:

V_s	=	Maximum stabilization volume loss
R_s	=	Maximum stabilization leak rate (bbl/hr)
T	=	Time (hr); either 24 hours or the number of hours to drain the entire section, whichever is smaller.

Using the results of the equations above, the stabilization volume during a 24-hour period is calculated.

The analysis adjusted the stabilization leak rate at each leak site along the line in 100-foot segments and adjusted the leak rate relative to the elevation difference at the maximum leak location and the leak site. In addition, consideration was given to the impact of closing all manual valves within 2 hours of a gash release event. This was based on a conservative Crimson assessment of personnel response times during a leak event.

Baseline Spill Volume Results

Spill volumes for the baseline spill analysis, as shown in Table 3, were calculated based on the maximum time to recognize a leak due to a gash (20 min), the pumping pressure (1,200 psi), and the drain-down calculation resulting in the largest possible release from a rupture (approximately 2,665 bbl).

Table 3: Baseline Spill Results

Length (mi)	Diameter (in.)	Pumping Pressure (psi)	Maximum Elevation Across Segment (feet)	Initial Release Volume (bbls)	Stabilization Release Volume (bbls)	Maximum Release Volume (bbls)	Product
85.97	10.750	1,200	264.7	134	2,531	2,665	Crude Oil

Table 4 summarizes the spill analysis results for the CSFM #334 Ventura 10 pipeline per the CBAT reporting table.

Table 4: Baseline CBAT Spill Results

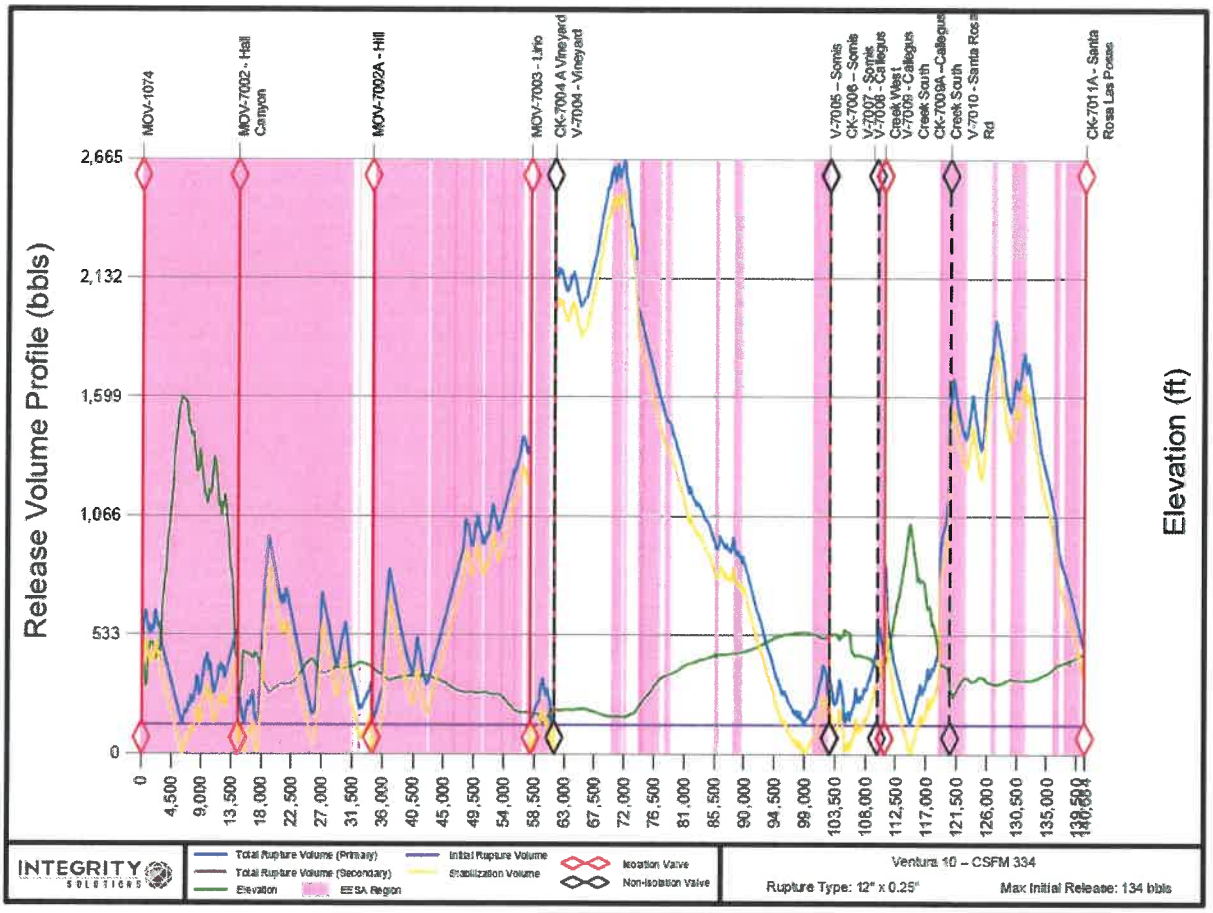
CBAT Analysis Variables	Current Operating Scenario
Maximum leak detection time (hours)	0.250
Maximum shut-down response time (hours)	0.083
Maximum flow rate (bph)	2,010
Drain down volume (bbls)	2,531
Reasonable worst-case discharge volume (bbls)	2,665

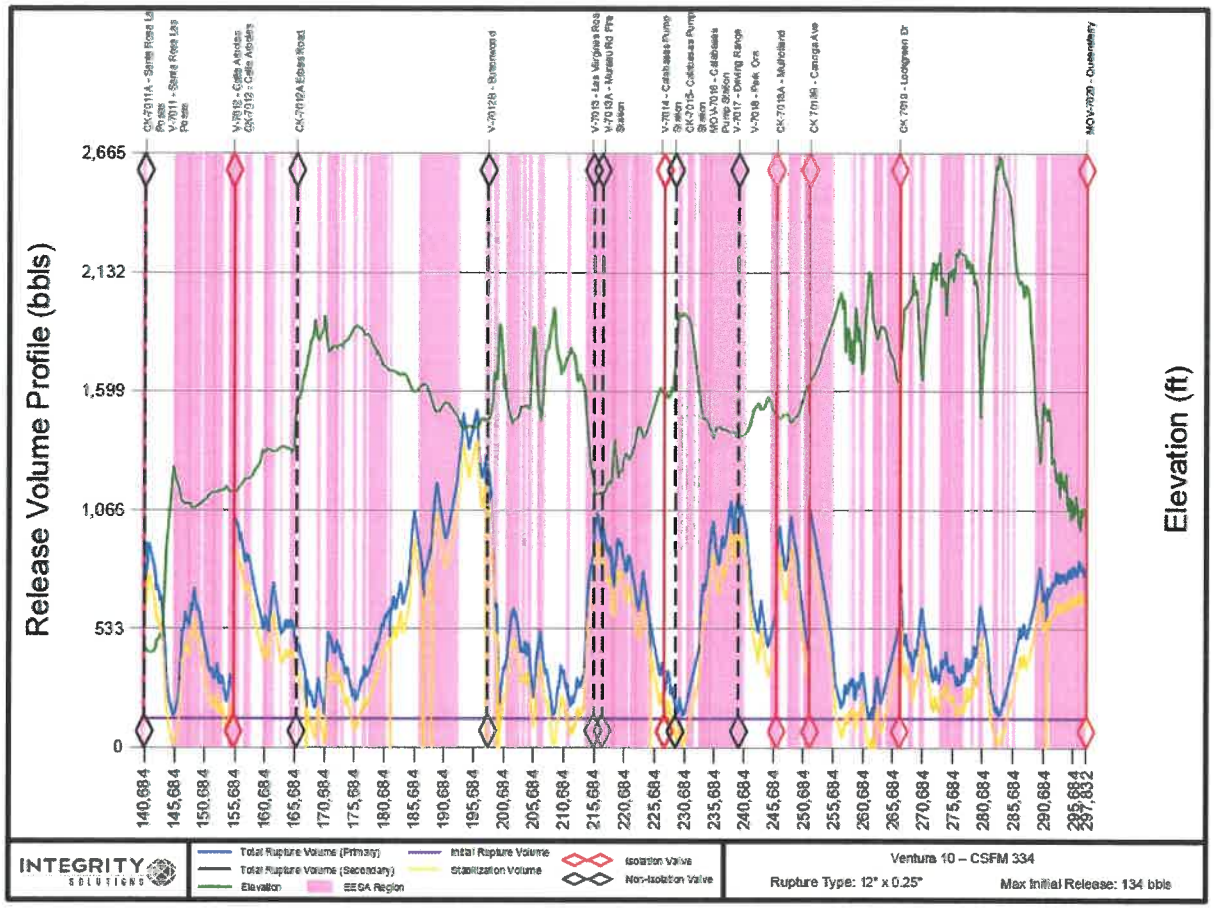
Baseline Spill and Risk Analysis

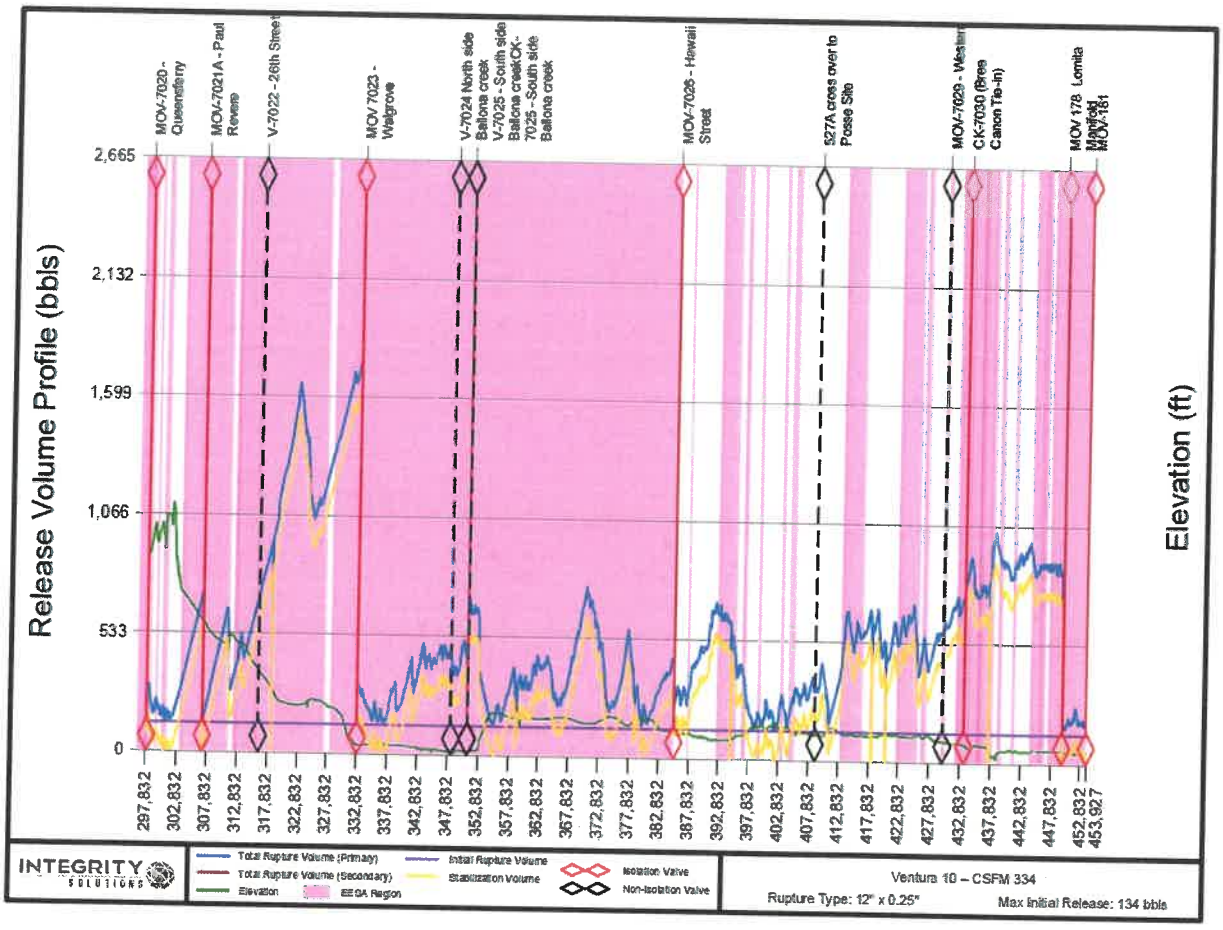
Detailed Release Volumes

Figure 6 is a graph showing the Crimson-calculated release volumes relative to the ground elevation at every location on the pipeline and illustrates the gash release discharge scenario.

Figure 6: Elevation Profile and Spill Volume – Gash Release Scenario



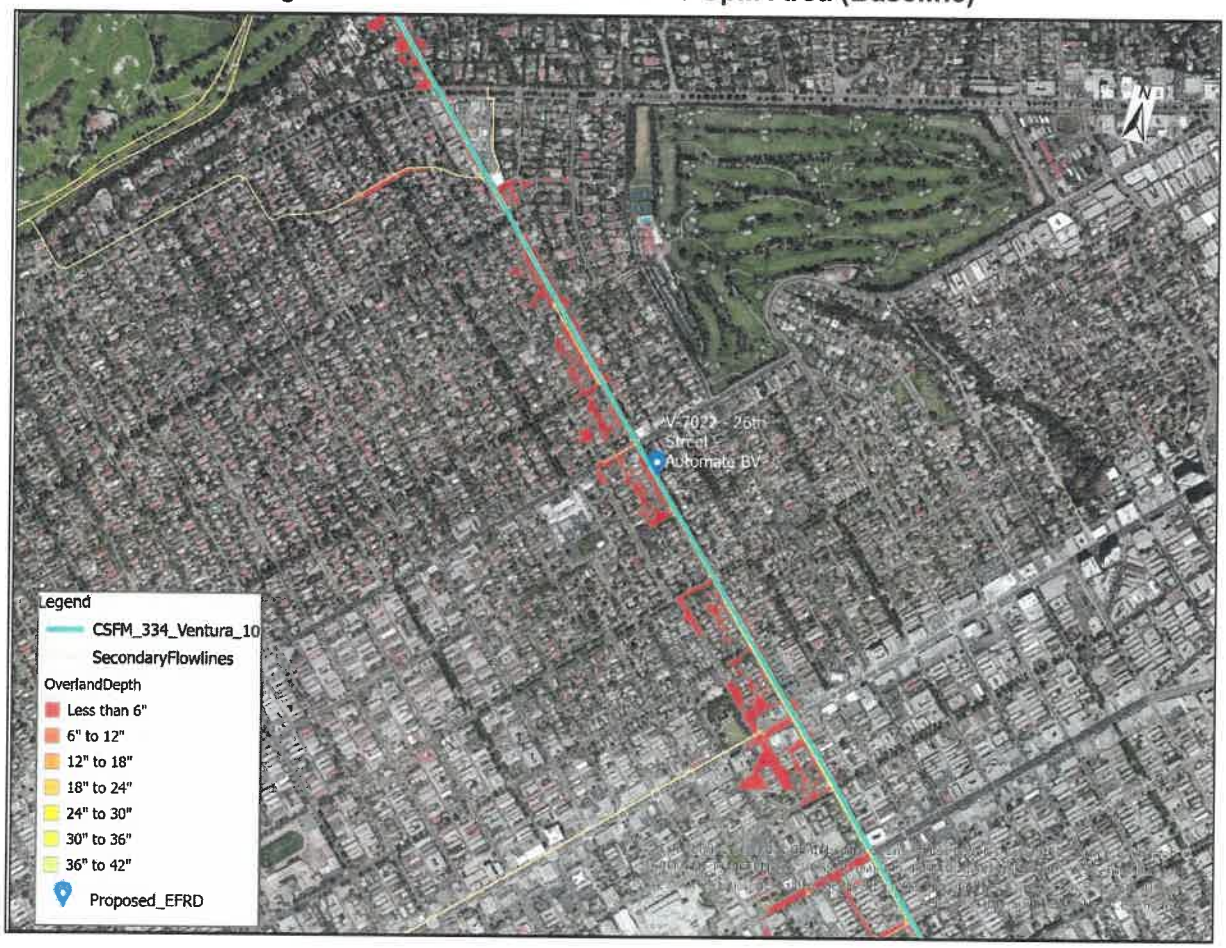




Spill Modeling

The release volume information was used to generate a spill model to determine whether a release could affect a defined EESA. Figure 7 demonstrates the resultant spill area (red polygons) and watershed crossings (tangerine lines) for a portion of the pipeline based on the baseline spill analysis. As shown in Figure 3, the pipeline right-of-way directly intersects multiple EESAs and crosses multiple waterways that could be a conduit to additional EESAs.

Figure 7: CSFM #334 Ventura 10 Spill Area (Baseline)



BAT Evaluation

BAT Definition and Determination

BAT is defined by CBAT as the technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use in the industry and could be purchased and installed on the subject pipeline system(s).

CBAT defines the BAT options as:

- Installation of leak detection technology (LDT)

- Automatic shutoff systems (Auto SS)
- Remote-controlled sectionalize block valves (MOV)
- EFRDs
- Any combination of these technologies

The BAT determination criteria, as defined by CBAT are:

- Effectiveness in terms of sensitivity, accuracy, reliability, and robustness
- Engineering feasibility considering operational aspects of the pipeline
- Provides greatest degree of protection
- Limits the quantity of the release
- Best in use in other similar situations and is available for use by Operator
- Transferrable to the operator's pipeline operations
- Provide increased spill prevention, spill volume reduction, or other environmental benefits
- Age and condition of the BAT currently used on the pipeline
- Compatible with existing operations and technologies in use

Industry-Standard Leak Detection Methods

Table 5 shows common leak detection methods, as referenced from Table 7 of API RP 1160, which can be categorized into four types – Surveys, Mass Balance, Shut-In Tests, and Alternative Leak Detection. Combinations of the types can be used simultaneously to ensure more complete detection of both large ruptures and small leaks. Cost/benefit and potential risk reduction must be taken into consideration when making these evaluations, as well as the factors listed in 49 CFR 195.452(i)(3) and PHMSA FAQ 9.4.

Table 5: API 1160 Annex F Leak Detection Systems

Method	Locates Leak	Availability	Beneficial Feature	Biggest Limitation
Periodic auditory, visual and olfactory inspections	Yes	Periodic	Simplicity	Delayed recognition of leak between intervals
Volume balance	No	Intermittent based on comparison time	Simplicity	Transients tend to cause false alarms
Dynamic flow modeling	Yes if analysis is done	Continuous even when transients are present	Best method to detect small leak rapidly	Complexity and cost
Tracer chemical	Yes	Can be either continuous or one time	Accurately locates small leaks	Must add something to the product and requires air sampling
Release detection cable	Yes	Continuous	Accurately locates small leaks	Next to impossible to retrofit an existing pipeline
Shut-in leak detection	No	Periodic	Simplicity	Requires shutting off flow and accurate pressure monitoring
Pressure point analysis	Yes, if multiple points used	At the sampling rate except during transient operation	Simplicity	Not suitable for larger pipeline or compressible fluids
Acoustic leak detection	Yes	Continuous		

Evaluation of Current Systems and Potential Enhancements

CBAT requires a process that incorporates spill modeling for comparing the baseline or current configuration of a pipeline against selected scenarios for potential EFRD placement and/or leak detection parameters using the BAT for the operational characteristics and product delivered. The following sections review the existing spill prevention and response capabilities and evaluate potential scenarios for enhanced leak detection and installation of EFRDs as a means of risk/spill reduction.

Review of Existing Leak Detection and Prevention System

Current Leak Detection

Crimson incorporates both an Atmos leak detection system and Pi flow balancing software which monitors pressure and flow on the pipelines. The Atmos leak detection system consists of both dynamic leak detection monitoring, for pipelines under flow, and static leak detection for pipelines that are not flowing but are at least 15 psig above ambient pressure. Both systems are integrated with Crimson's SCADA system.

The Atmos system has proven to be effective in identifying large leaks due to third-party hits, Crimson's most likely failure mode, or ruptures along with small pinhole leaks. Over the last several years, Crimson has installed check meters and upgraded SCADA and data collection equipment across the system to continually enhance leak detection capabilities.

The pipeline is protected by a well-conceived control strategy which incorporates protective and control devices on the pipeline, pump stations and tanks.

- Pipeline overpressure relief valves are set to prevent over pressuring the lines. Instrumentation monitors the station pumps suction and discharge pressures and the pumps and motors operating status (bearing temperature, vibration and seal failure).
- Pump and motor status monitoring instrumentation provide alarms and shutdowns of the unit should it exceed operation set points.
- High pressure shutdown trips are provided on the outlet of all pumps to ensure lines are not over pressured.
- The system pressure is maintained and controlled by a suction pressure controller at the pump discharge.
- Level switches at the tanks provide a high-high alarm to the control center.
- The pipeline system is remotely controlled and monitored 24 hours a day, 7 days a week.

Current Automatic Shutoff System Capabilities

This pipeline does not have any ESD capabilities due to the immediate pressure surge that can be caused by ESDs; however, the pipeline incorporates a leak detection system, as discussed above, and is connected to a 24/7 manned control room. Additionally, all third-party producers have shut off valves immediately upstream of any custody transfer points.

Current Emergency Flow-Restriction Device Capabilities

The pipeline has a number of emergency flow-restriction devices currently installed as shown in Figure 6. Remote operated valves are installed at:

- MOV-1074 (Station 0)
- MOV-7002 – Hall Canyon (Station 14,529)

- MOV-7002A – Hill (Station 34,429)
- MOV-7003 – Lirio (Station 57,983)
- MOV-7016 – Calabasas Pump Station (Station 227,408)
- MOV-7020 – Queensferry (Station 297,832)
- MOV-7021A – Paul Revere (Station 307,083)
- MOV-7023 – Walgrove (Station 332,906)
- MOV-7026 – Hawaii St (Station 385,405)
- MOV-178 – Lomita Manifold (Station 449,737)
- MOV-181 – Tesoro Wilmington Refinery (Station 453,927)

Check valves are installed at:

- CK-7004A - Vineyard (Station 61,557)
- CK-7006A - Somis (Station 102,703)
- CK-7009A – Callegus Creek South (Station 110,884)
- CK-7011A – Santa Rosa Las Posas (Station 140,684)
- CK-7012 – Calle Arboles (Station 155,387)
- CK-7015 - Calabasas Pump Station (Station 227,414)
- CK-7018A – Mulholland (Station 246,260)
- CK-7018B – Canoga Ave (Station 251,783)
- CK-7019 – Lockgreen Dr. (Station 266,832)
- CK-7025 – South Side of Ballona Creek (Station 351,167)
- CK-7030 – Brea Canon Tie-In (Station 433,551)

Evaluation of Enhanced Leak Detection System

Operators should evaluate the capability of the existing LDS to protect the public, property, and the environment. This evaluation should then be used in the selection of the BAT. There are minimum factors to review in evaluating the effectiveness of the leak detection. The requirements of §195.444 and §195.452(i)(3) both indicate that an operator must consider at least the following factors to evaluate the effectiveness of leak detection:

- Length and size of the pipeline
- Type of product carried
- The swiftness of leak detection
- Location of nearest response personnel,
- Leak history

For leak detection, FAQ-9.4 echoes the requirements of Part 195 and advises that for evaluation of leak detection the operator should consider the following:

- System operating characteristics (e.g., steady state operation, high transient pressure and flow)
- Use of a supervisory control and data acquisition (SCADA) system
- Thresholds for leak detection
- Flow and pressure measurement
- Specific procedures for lines that are idle but still under pressure
- Testing of leak detection means, such as physical removal of product from the pipeline to test the detection
- Any other characteristics that are part of the system of leak detection

Regulatory Factors

Table 3 (in the *Baseline Spill Volume Results* section, above) summarizes the primary leak detection effectiveness factor data for the pipelines under review per §195.452(i)(3) and/or §195.444. The following subsections provide commentary for each regulatory factor.

Length and Size of Pipeline

For this factor, the following details were considered:

- The length and size of the line are factors considered when evaluating potential volume loss for a gash rupture but also when evaluating LDSs.
- Some LDS types are limited by the length (sensor positioning) and/or size of a pipeline, so these were considered in evaluating the effectiveness of the current leak detection methods.
- Volume loss should be taken into consideration when prioritizing implementation of supplemental leak detection to prioritize lines that potentially will have a greater impact on nearby EESAs.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is deemed high stress and more likely to fail by rupture; however, Crimson states the most likely failure method is due to a third party hit.
- The current leak detection methods, pressure monitoring, volume balance and ROW patrols, are not limited by the line's length and size.

Type of Product Carried

For this factor, the following details were considered:

- The product type is accounted for in the drain-down calculation, as well as in the overland and overwater spread calculation performed during the EESA spill impact analysis.
- LDSs can be specific to product type. For example, certain systems are only applicable for liquid lines or have better accuracy for gas lines.
- Another consideration when evaluating LDSs is the consequence from a failure due to the product type. For example, with HVL lines there is potential for release cloud build-up that could potentially ignite. This increased consequence due to product type is a factor in prioritizing leak detection enhancement methods.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is a hazardous liquid pipeline that transports crude oil. Crude oil is highly flammable; therefore, consequence due to product type is considered high.
- The current leak detection methods, pressure monitoring, volume balance and ROW patrols, are appropriate for the product type transported.

Swiftness of Leak Detection

For this factor, the following details were considered:

- Along with the EFRD analysis and pipeline isolation, the swiftness of rupture detection and pipeline shutdown were evaluated in conjunction with the system detection time, operator response time, remotely controlled valve response time, and any other pipeline isolation time requirements. These are all assessed when determining the potential quantity that could be released.

- In the case of a large rate release, such as a gash release, it is more critical to have swift leak detection due to a higher rate of release during the initial release state before the ESD is activated.
- In the case of smaller rate releases, such as pinhole leaks, the ability to actually detect the leak is more critical than the requirement to detect it swiftly.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is considered high stress and more likely to fail by rupture; however, Crimson states the most likely failure method is due to a third-party hit.
- For the EFRD analysis, Crimson assumed a detection time of 15 minutes for a gash release along with 5 minutes to shutdown pumps and close automated isolation valves.
- Utilization of both dynamic (system running) and static (system shutdown) Atmos leak detection software has proven to be effective in identifying large leaks due to third-party hits or ruptures along with small pinhole leaks.

Location of Nearest Response Personnel

For this factor, the following details were considered:

- The drive time for the first responder operator to get to the potential failure site to validate that an actual failure has occurred is considered along with the drive time for the emergency response team to get to the failure to initiate in-field emergency response actions. The extent of public and environmental damage is highly dependent on these response times.
- Additionally, response time to close manual valves to further isolate the pipeline is another factor considered as time to isolate the pipeline contributes to the amount of volume released.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is near the Santa Fe Springs and Redondo offices. The Control Center, located on Kilroy Airport Way in Long Beach, is staffed 24/7 and emergency response personnel are always available nearby and can quickly respond to a failure location or operate valves to isolate the pipeline.
- Manual valves on the pipeline can be closed within 2 hours in order to further isolate the pipeline and limit the volume released.

Leak History

For this factor, the following details were considered:

- Leak history can be a lagging indicator but a useful one because the time to detect and respond to historical leaks can lead to improvements to future leak detection.
- Leak history is considered to predict potential threats that could lead to failures. As mentioned previously, high stress pipelines have the potential to fail by rupture or leak, which can be caused by various threats, while low stress pipelines will fail by leak generally caused by internal or external corrosion. Therefore, if leak history indicates an on-going, active internal or external corrosion threat then the likelihood of a leak in a low stress pipeline can be significant.
- Failures can be caused by other threats, such as mechanical damage. However, first party or third-party mechanical damage, including vehicular damage, are typically

identified by the instigator reporting the damage and can be mitigated through public awareness programs.
- In the case of failure from incorrect operations, a pressure excursion can be detected by the operator when it occurs and this threat can be mitigated by appropriately designed operations, surge mitigation and proper training.

Evaluation of current leak detection in relation to this factor determined the following:

- Crimson has not had any reportable leaks on the pipeline.

Additional Factors per FAQ-9.4

In addition to §195.452(i)(3) and/or §195.444 leak detection effectiveness factors, the following additional factors listed in PHMSA FAQ-9.4 were evaluated, as outlined in the following subsections.

System Operating Characteristics

For this factor, which includes characteristics such as steady state operation and high transient pressure and flow, the following details were considered:

- The pipeline's operating characteristics were considered because how a pipeline operates could limit an LDS's applicability or effectiveness. For example, many LDSs are not applicable for pipelines that are routinely placed in slack condition. Additionally, when a pipeline is started up from slack condition there is a transient period where some LDSs are compromised.
- A slack condition can be a greater concern for low stress lines that are more likely to fail by leak because leak detection can potentially be exceedingly difficult when a pipeline is in slack condition.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is deemed high stress; however, Crimson states the most likely failure method is due to a third party hit.
- The pipeline is often placed in slack condition but is monitored by the Atmos static leak detection system.

Use of SCADA

For this factor, the following details were considered:

- SCADA is a consideration because it can allow for fast data access and response to potential failure situations. Pipeline operators can continually be updated on the status of pipelines in the control room, rather than having to be in the field locally taking readings. Also, alarms can be implemented that alert the operators when data received indicates a potential issue.

Evaluation of current leak detection in relation to this factor determined the following:

- Pipeline flow rates and pressures are monitored during transfer operations 24 hours a day, 7 days a week by the Pipeline Control Center using the Pi Line Balance System, SCADA data, and Atmos Leak Detection.
- Each pipeline system is monitored and protected by a well-conceived control strategy which incorporates protective and control devices on the pipelines, pumping stations and tanks. Pipeline relief valves are set to prevent overpressure of the lines. Instrumentation

monitors the station pumps suction and discharge pressures and the pumps and motors operating status (bearing temperature, vibration, and seal failure).

- Pump and motor status monitoring instrumentation provide alarms and shutdowns of the unit should they exceed operational set points.
- High pressure shutdown trips are provided on the outlet of all pumps to ensure lines are not over pressured.
- The system pressure is maintained and controlled by a suction pressure controller at the pump discharge.
- Level switches at the tanks provide a high-high alarm to the control center.
- SCADA functionality is currently present for the pipeline and the Pi Line Balance System utilizes data provided by SCADA.

Thresholds for Leak Detection

For this factor, the following details were considered:

- The leak detection threshold should be considered relative to the potential consequence of failure, therefore, the higher the consequence then the more critical the threshold.
- The leak detection capability must be considered because it must align with the typical mode of failure the pipeline is likely to experience. For this pipeline, the most likely failure mode is a gash release due to a third-party hit; therefore, the LDS needs to be able to detect this type of failure.

Evaluation of current leak detection in relation to this factor determined the following:

- The pipeline is patrolled bi-weekly and leaks tend to be discovered before they reach a significant size.
- Crimson utilizes both dynamic (system running) and static (system shutdown) Atmos leak detection software which has proven to be effective in identifying large leaks due to third party hits or ruptures along with small pinhole leaks.

Flow and Pressure Measurement

For this factor, the following details were considered:

- Flow and pressure measurement can be employed in various leak detection methods; therefore, it is valuable to consider a pipeline's present measurement ability. It is also beneficial to know if the measurement data can be conveyed to the control room via a SCADA system.

Evaluation of current leak detection in relation to this factor determined the following:

- The pressure and flow measurement capability is outlined in the *Use of SCADA* section above. Atmos and Pi Line Balance System utilize data provided by SCADA including flow and pressure measurement.

Specific Procedures for Lines that are Idle but Still Under Pressure

For this factor, the following details were considered:

- Idle condition in this evaluation is regarded as a long-term condition, greater than six months, rather than short-term lasting for a few days or weeks.

- Many LDSs are not applicable for pipelines that are idle but under pressure, so it is a consideration and it may be necessary to implement procedures for addressing leak detection under these conditions.
- An idle condition can be a greater concern for low stress pipelines that are more likely to fail by leak because leak detection can potentially be exceedingly difficult when a pipeline is idle.

Evaluation of current leak detection in relation to this factor determined the following:

- Crimson's policy is to evacuate a pipeline that will be idled.

Testing of Leak Detection Means

For this factor, which includes means such as physical removal of product from the pipeline to test the detection, the following details were considered:

- This factor proves that the LDS is operating at its set parameters. This is an important consideration since it validates the effectiveness of the system and confirms the system is performing as it should be by accurately discovering leaks.

Evaluation of current leak detection in relation to this factor determined the following:

- Crimson is not currently performing leak detection tests by physically removing product from its pipelines. It will be recommended that a procedure to perform this action with a recommended frequency be considered so that, in the future and when practical, the leak detection capability and processes are being continuously validated.

Additional Factors

The following additional factors were considered as part of the BAT evaluation of the existing Atmos leak detection system:

- Atmos was founded in 1995 and is currently installed on over 1,500 pipelines consisting of 20,000 miles worldwide.
- Statistical leak detection technology with stated low false alarm rates.
- Atmos leak detection has passed the scrutiny of the TUV, the German regulatory authority (arguably the toughest regulator in Europe), and the US Government's Minerals Management Service (for crude oil pipelines in the particularly sensitive area of offshore California.) Atmos Pipe is cited as a Best Available Technology by the Alaska Department of Environmental Conservation.
- Utilized in coastal environments around the world.

Determination for Supplemental Leak Detection Implementation

CBAT requires the evaluation of improved LDT scenarios using BAT for the pipeline operational conditions that exist. In the case of the pipeline, it is more likely to experience a gash release due to a third-party hit. Using this knowledge, Crimson evaluated the need to implement a different technology for leak detection.

Atmos' LDS uses a statistical volume balance system to actively monitor the pipeline in real-time and alert the operator to discrepancies that could indicate a release. Crimson utilizes a conservative release recognition time of 20 minutes to recognize a release and close valves to calculate WCD volumes. The process for a modern remote net-metering LDS to alarm and for an operator to decide to stop product flow and close isolation valves typically only takes a few

minutes. These systems relay information effectively and efficiently and it is likely, with the existing LDS configuration, that a release would be detected well before the 20-minute assumption used to model release volumes.

Taking into consideration the factors presented above and the likelihood the pipeline will experience a third-party gash release, Crimson determined that the current setup utilizing multiple systems—namely Atmos' static and dynamic LDS in addition to Pi flow balancing—already represent the BAT. Therefore, enhanced LDS is not applicable for this pipeline system.

Review of Existing Valves

The current equipment installed on the pipeline consists of remote-operated and check valves as detailed under the *Current Emergency Flow-Restriction Device Capabilities* section above. Additionally, the pipeline has 20 manually-operated valves located along the pipeline.

Evaluation of Added Emergency Flow-Restriction Devices

EFRD Scenario Analysis

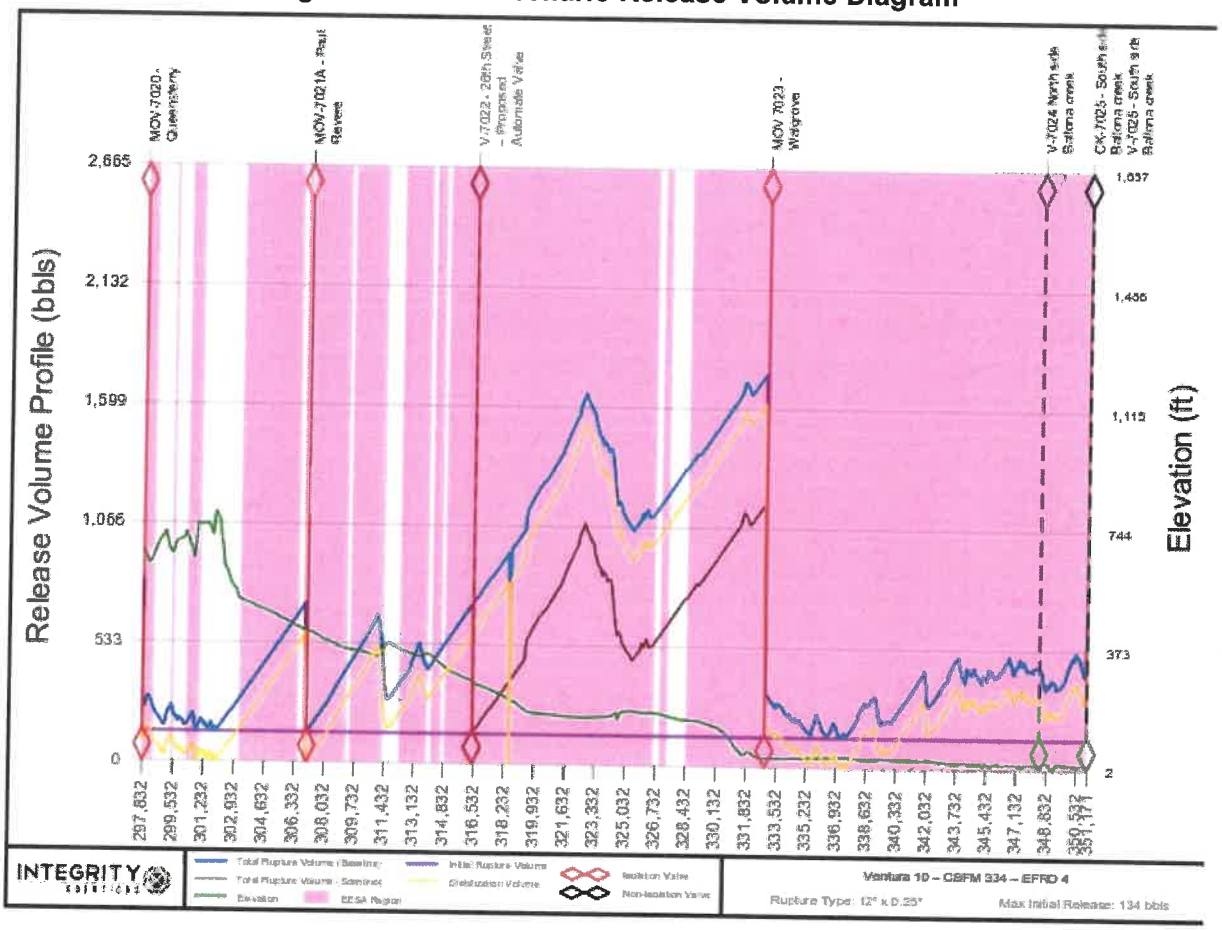
The pipeline is a long pipeline (85.97 miles) and industry studies have shown that EFRDs installed on these types of pipelines can impact volume reduction. An EFRD scenario was analyzed to evaluate the impact that automating an existing manual valve (V-7022), would have on the maximum release volume of the pipeline if implemented, as shown in Table 6. The reasonable worst-case discharge volume (maximum release volume) of the pipeline remains the same as the current operating scenario.

Table 6: EFRD Installation Scenario Spill Comparison

CBAT Analysis Variables	Current Operating Scenario	MOV
Maximum leak detection time (hours)	0.250	0.250
Maximum shut-down response time (hours)	0.083	0.083
Maximum flow rate (bph)	2,010	2,010
Drain down volume (bbls)	2,531	1,052
Reasonable worst-case discharge volume (bbls)	2,665	1,186*
* Baseline reasonable worst-case discharge volume in the isolation section is 1,767 bbls		

Figure 8 shows the resultant release volume profile for the portion of the pipeline impacted by the proposed EFRD in red along with the baseline release volumes in blue.

Figure 8: EFRD Scenario Release Volume Diagram



Determination for Added EFRDs

The results of the EFRD scenario modeled for this pipeline system indicates potential improvement in the spill release volumes for a 3.12-mile segment, starting at the proposed MOV at 316,532 and ending at MOV 7023, that has the potential to impact a number of EESAs. The proposed EFRD could potentially reduce the volume impact in the isolation section by 581 bbls (33% reduction); however, the proposed EFRD does not demonstrate a reduction in the maximum spill volume exhibited by the pipeline. Figure 9 compares the spill area after the proposed EFRD (red polygons) to the baseline spill area (green polygons).

Figure 9: EFRD Scenario Spill Area Comparison

Final BAT Selection

For this segment, Crimson will be installing a Motor Operator to existing block valve #7022 at M.P. 59.94. This system already has ATMOS Leak Detection Technology which is considered BAT for leak detection.

Many variables must be considered when researching, selecting, and implementing pipeline leak detection or EFRD equipment. These variables include regulations, compatibility with current leak detection methods, suitability to existing data acquisition system, testability, pipeline properties and environment, ease of implementation, complexity of training required, maintenance required, and a litany of other pertinent features should be considered.

The goal to verify leak detection on this pipeline and evaluate its effectiveness was applied to various failures, from large volume releases during transportation of product to small leaks when the line is in slack condition, to make sure there were no gaps. The information gathered was used in evaluating the effectiveness of the current leak detection methods. It can be concluded that the statistical LDS along with the existing volume balance method Crimson currently uses will be effective for discovering both large leaks and ruptures while moving product and smaller leaks or when the pipeline is in slack condition.

Since leak detection technology for the current pipeline is currently using the BATs, Crimson proposes to implement the EFRD scenario detailed above.

Table 7 provides a summary of the EFRD/BATs considered.

Table 7: Potential EFRD/BAT Options

CBAT Analysis Variables	Current Operating Scenario	LDT	Auto SS	MOV	EFRD
Maximum leak detection time (hours)	0.250	0.250	-	0.250	-
Maximum shut-down response time (hours)	0.083	0.083	-	0.083	-
Maximum flow rate (bph)	2,010	2,010	-	2,010	-
Drain down volume (bbls)	2,531	2,531	-	1,052	-
Reasonable worst-case discharge volume (bbls)	2,665	2,665	-	1,186*	-
* Baseline reasonable worst-case discharge volume in the isolation section is 1,767 bbls					

Implementation Plan

An initial implementation plan outlining the timeline to implement the proposed BAT(s) is required per CBAT and will be submitted with the risk analysis.

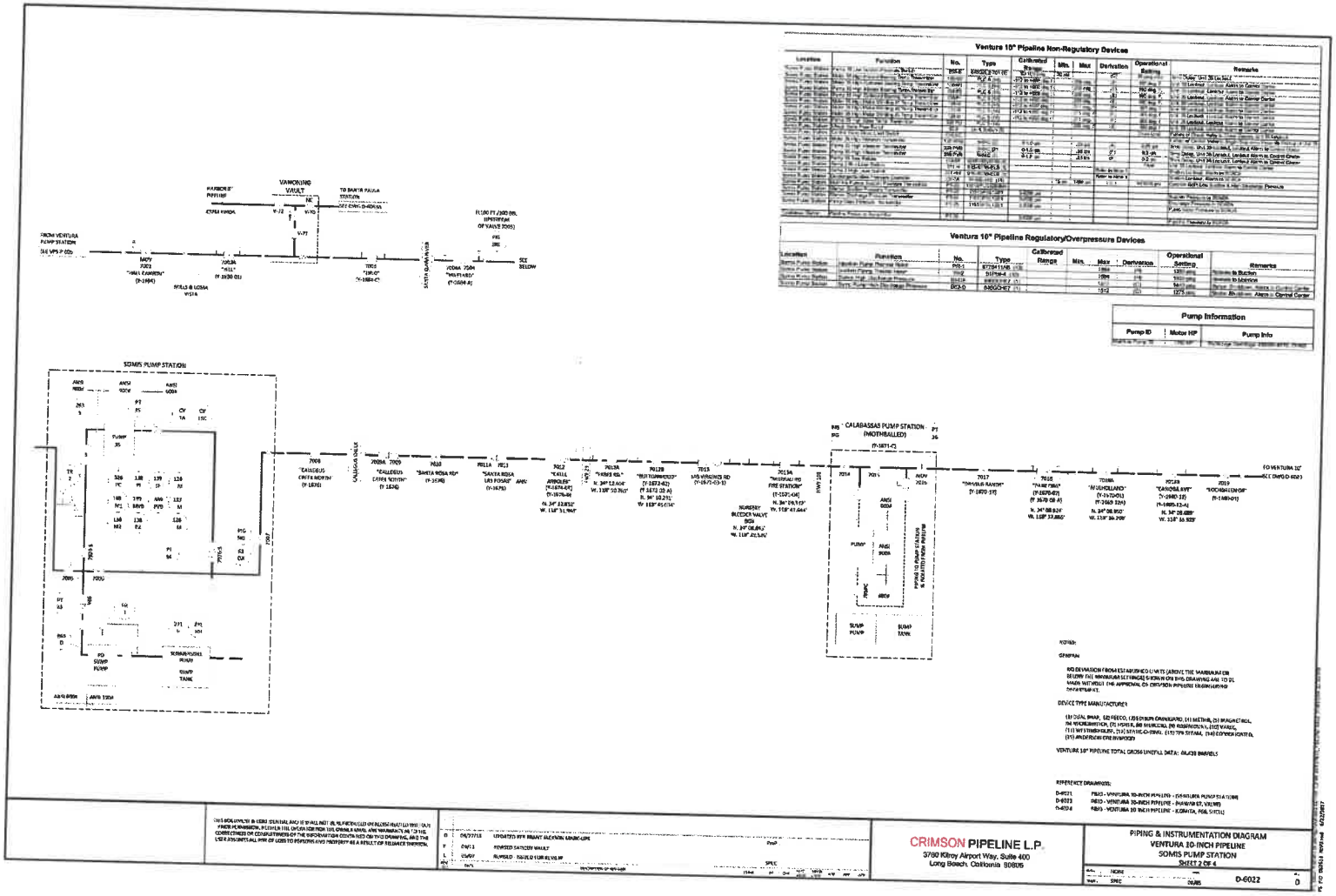
Within 60 days of OSFM's acceptance of the risk analysis, a supplemental implementation plan will be submitted to the State Fire Marshal. The supplemental implementation plan, at a minimum, shall include:

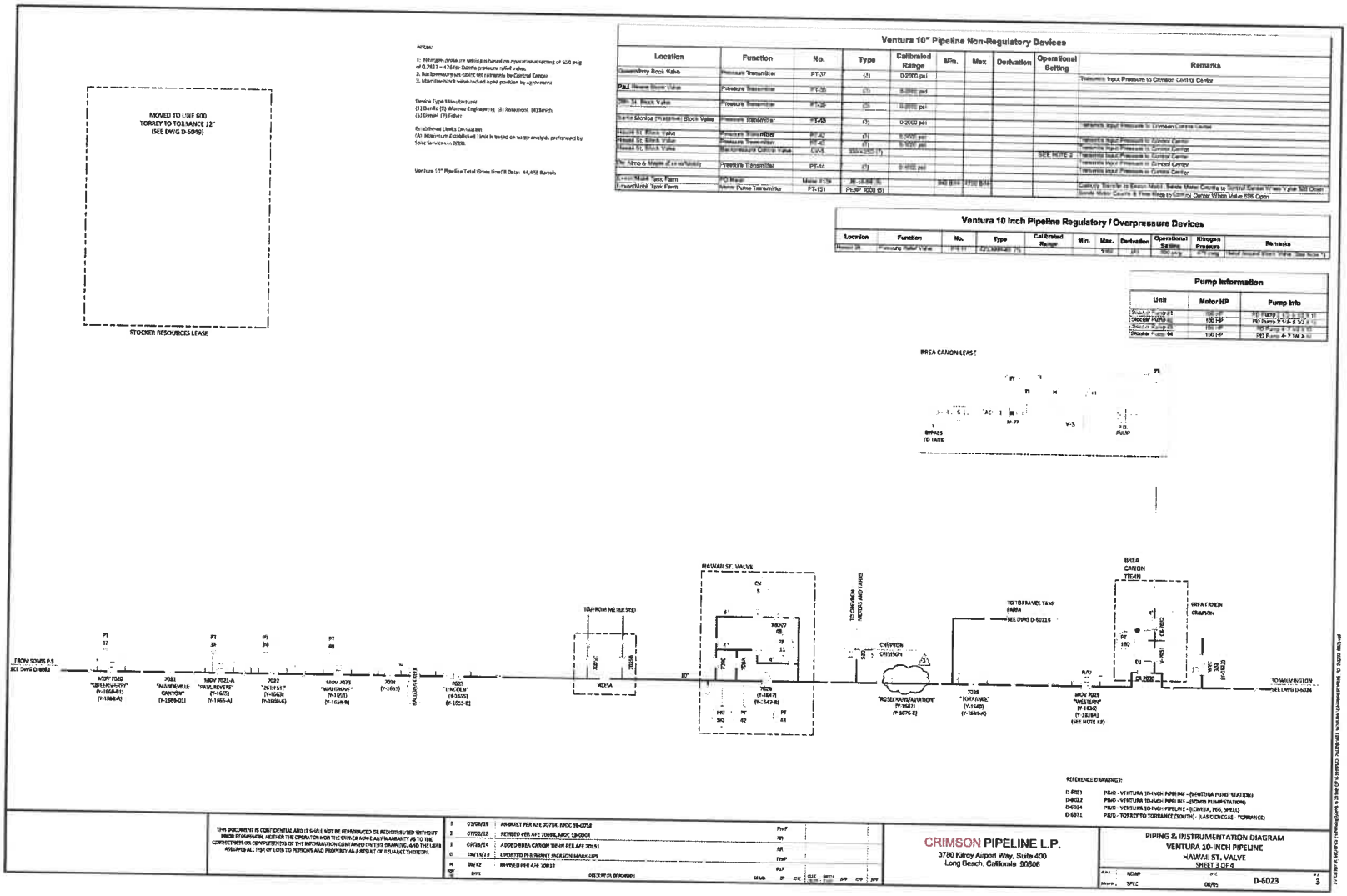
- Introductory material, including:
  - Name of operator and CSFM pipeline ID number
  - Mailing address
  - Name, address, phone number and email address of the operator
  - Certification statement
  - List of contacts and contact information
- Timetable for implementation and completion, including key milestones
  - Purchase of equipment
  - Acquisition of permits
  - Securing qualified individuals for construction
- Startup plan
- Testing program
- Training

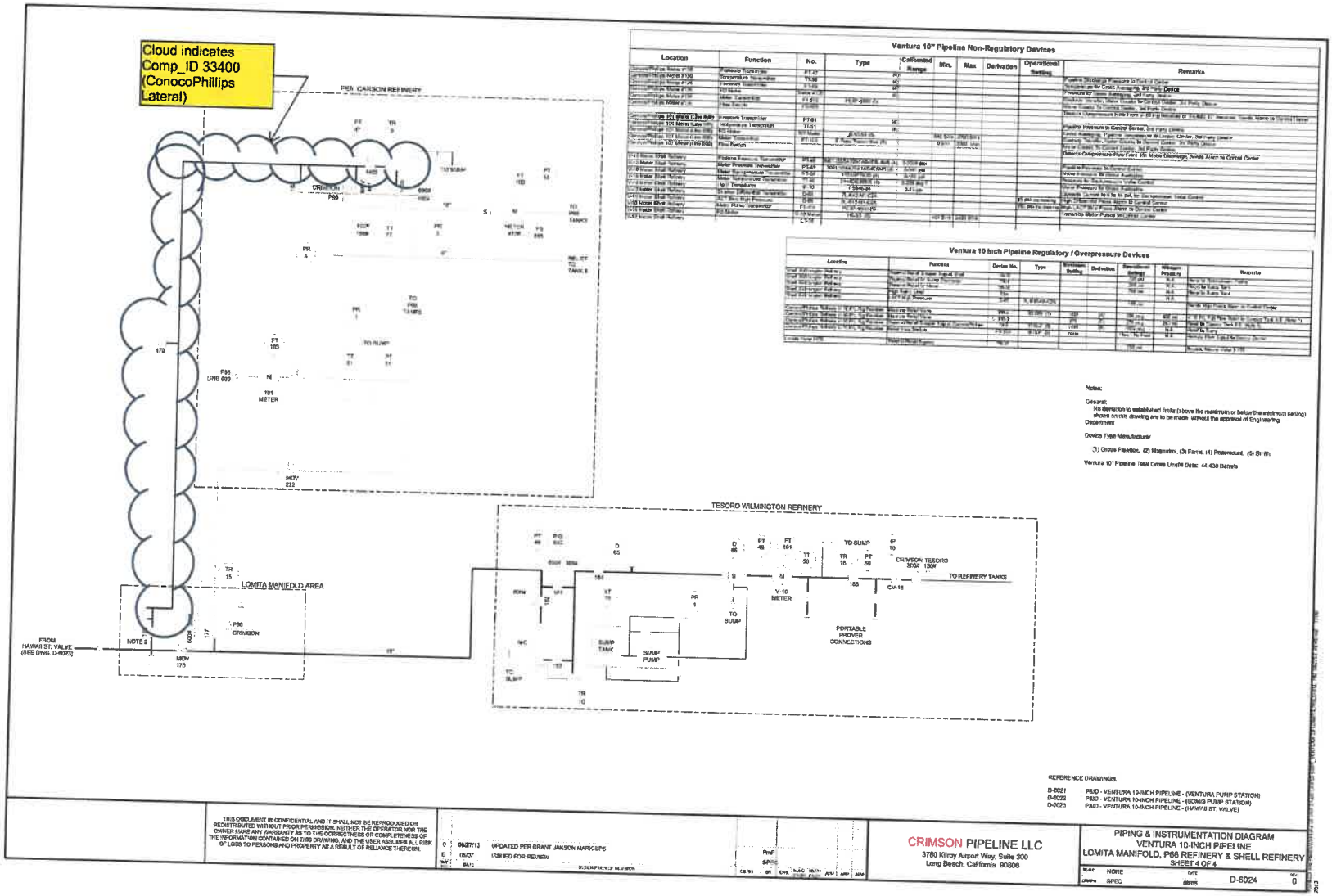
Any questions relating to the information presented in this risk analysis document should be referred to the *List of Contacts* on page *iii*, with the permission of Crimson Pipeline L.P. personnel.

Appendix A: Piping and Instrumentation Diagrams

Figure 10: CSFM #334 Ventura 10







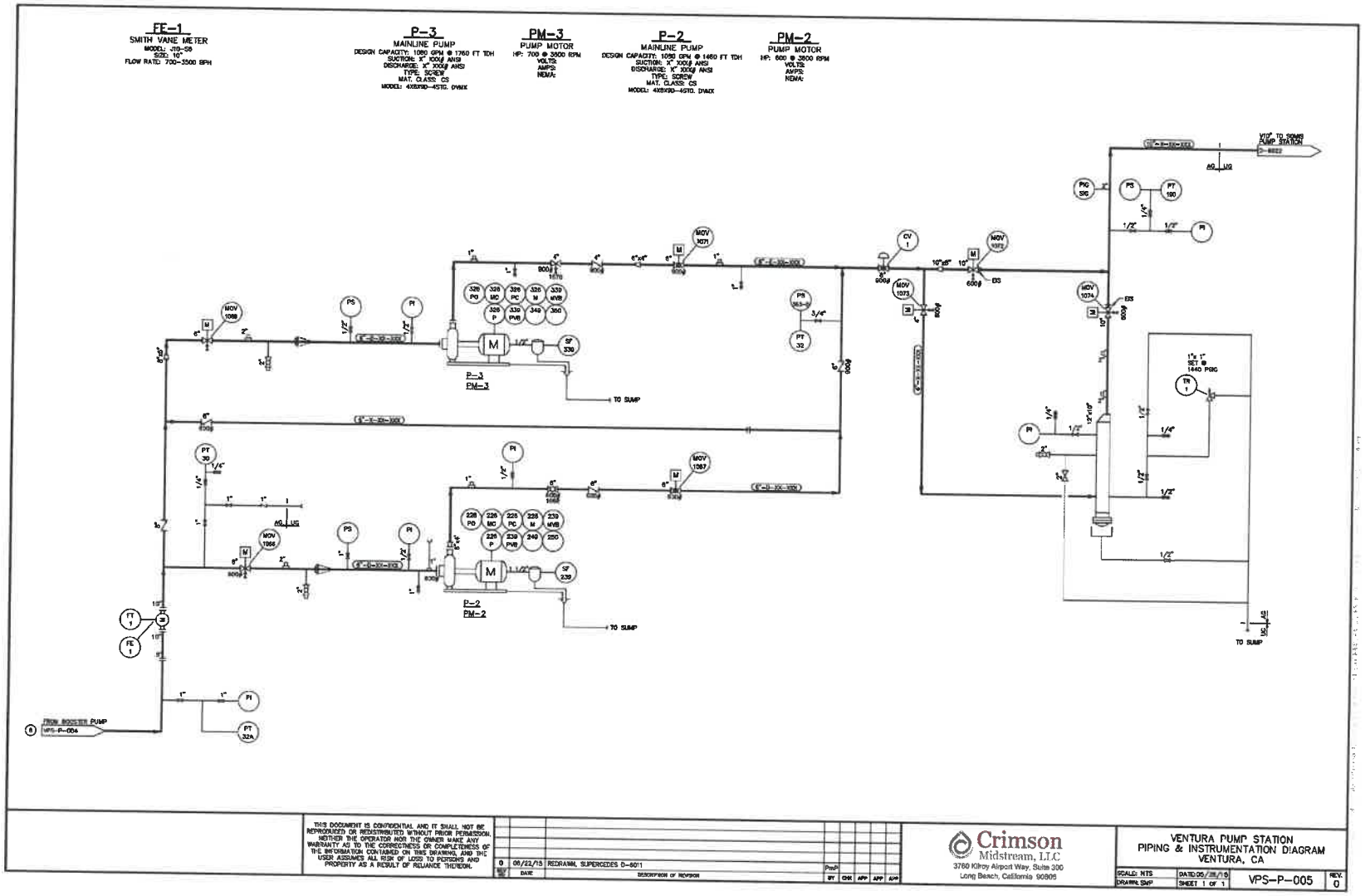


Exhibit 4

Form PSD-2113
Implementation Plan
For Specific Pipeline Segments
(Attachments 4-A through 4-I)

Attachment 4-A

Form PSD-2113
Implementation Plan

(Inglewood 12-inch Pipeline)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	42 Inglewood 12 Inch				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	6 and 8 inch				
MOP of subject pipeline:	600 to 736 PSI				
Average Daily Shipping Volume:	6,150 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See attached CBAT report from Integrity Solutions for details on the risk analysis.

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

On this segment, Crimson will be installing a new Motor Operated Block valve at MP 1.65. This will be in a below grade vault. The line is 2.90 miles long with existing MOV's on each end. Based on a detailed analysis of the spill modeling for this segment, adding this MOV has a dramatic impact on the reasonable worst case discharge volume. The reduction is shown above for item #3 MOV. It shows that by installing the new MOV, the spill volume will be reduced by 879 barrels or 37%.

This system already has the ATMOS Leak detection system. Atmos meets the definition of BAT for leak detection systems.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Information regarding the implementation plan and timing is still being developed. It will be provided to the OSFM by the December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. *Note: Initial release volume is 115 barrels.*

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	500			500		
Drain down volume, barrels	2,244			1,365		
Reasonable worst-case discharge volume, barrels	2,359			1,480		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-B

Form PSD-2113
Implementation Plan

(Seal Beach to New York Junction #2)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	CSFM 47 Seal Beach to New York Junction #2				
Product(s) normally transported:	**Crude Oil**				
Diameter of Subject Pipeline:	6 inch				
MOP of subject pipeline:	736 PSI				
Average Daily Shipping Volume:	3,000 BPD				
Contact person:	**David Blakeslee**				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	**562-285-4114**		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See Attached CBAT Report from Integrity Solutions for details of the risk analysis

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

On this segment, Crimson will be installing a Motor Operator to existing Block valve 768 at MP 6.6. The line is 13.8 miles long with existing MOV's on each end, two checks and several existing block valves with Motor Operators. Based on a detailed analysis of the spill modeling for this segment, adding an MO to existing block valve 768 has a dramatic impact on the reasonable worst case discharge volume. The reduction is shown above for item #3 MOV. It shows that by installing the new MO, the spill volume will be reduced by 615 barrels or 60%. Note that the segment starts in the Coastal Zone so any spill will likely impact the coastal zone.

This segment already has ATMOS leak detection technology which meets the definition of BAT for leak detection.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Implementation Plans and timing are still under development. They will be submitted to the OSFM by the current December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. ***Note: Initial release volume is 90 barrels.***

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	300			300		
Drain down volume, barrels	1,224			382		
Reasonable worst-case discharge volume, barrels	1,314			472		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-C

Form PSD-2113
Implementation Plan

(Ventura 10-inch Pipeline)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	CSFM 334 Ventura 10 Inch				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	10 inch				
MOP of subject pipeline:	1,440 PSI				
Average Daily Shipping Volume:	13,500 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See Attached CBAT Report from Integrity Solutions for details of the risk analysis

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

This segment already has 11 existing block valves with motor operators and 11 check valves. It has several non-motor operated block valves. On this segment, Crimson will install a MO to existing block valve #7022 at MP 59.94. Based on detailed spill modeling, this provides a dramatic reduction in the reasonable worst case discharge volumes. The number is reduced from 2,665 to 1,186 barrels, a reduction of 1,459 barrels or 55%.

This segment already has ATMOS leak detection technology which meets the definition of BAT for leak detection.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Implementation Plans and timing are still under development. They will be submitted to the OSFM by the current December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. ***Note: Initial release volume is 134 barrels.***

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	2.010			1,500		
Drain down volume, barrels	2,531			1,052		
Reasonable worst-case discharge volume, barrels	2,665			1,186		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-D

Form PSD-2113
Implementation Plan

(East Crude System)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	East Crude Gathering CSFM 339,1317, 447, 786, 852,458,855, 854,858, and 857				
Product(s) normally transported:	**Crude Oil**				
Diameter of Subject Pipeline:	6, 8 and 10 inch				
MOP of subject pipeline:	720 PSI				
Average Daily Shipping Volume:	2,750				
Contact person:	**David Blakeslee**				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	**dblakeslee@crimsonpl.com**	Phone:	**562-285-4114**		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	eastteam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See attached CBAT Report from Integrity Solutions for details of risk analysis.

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

Crimson is proposing 3 projects for the East Crude system,

1. One of the proposed BAT on this segment is the installation of ATMOS leak Detection Software. Crimson will be installing the ATMOS Leak detection system as a supplement to the existing PI leak detection technology on that portion of the East Crude system that does not already have ATMOS. Although it may be difficult to quantify the specific improvement in leak detection precision, the ATMOS system will provide a more robust leak detection capability.

2. Crimson will be installing a Motor Operator to existing Block valve 418 at MP 2.3 on the CSFM 858 Richfield to Sterns segment. The line is 5.3 miles long with existing MOV's on each end and two existing manual block valves. Based on a detailed analysis of the spill modeling for this segment, adding an MO to existing block valve 418 will provide a relatively large reduction in the reasonable worst case discharge volume. The reduction is shown above for item #3 MOV. It shows that by installing the new MO, the spill volume will be reduced by 364 barrels or 32%.

3. Crimson will be installing a Motor Operator to existing Block valve 471 at MP 5.69 on the CSFM 339 Brea Crude line segment. The line is 15.1 miles long with existing MOV's on each end and several existing MO and manual block valves. Based on a detailed analysis of the spill modeling for this segment, adding an MO to existing block valve 471 will provide a dramatic reduction in the reasonable worst case discharge volume. The reduction is shown above for item #3 MOV. It shows that by installing the new MO, the spill volume will be reduced by 1,282 barrels or 42%.

Most of this system already has the ATMOS Leak detection system. ATMOS meets the definition of BAT for leak detection technology.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

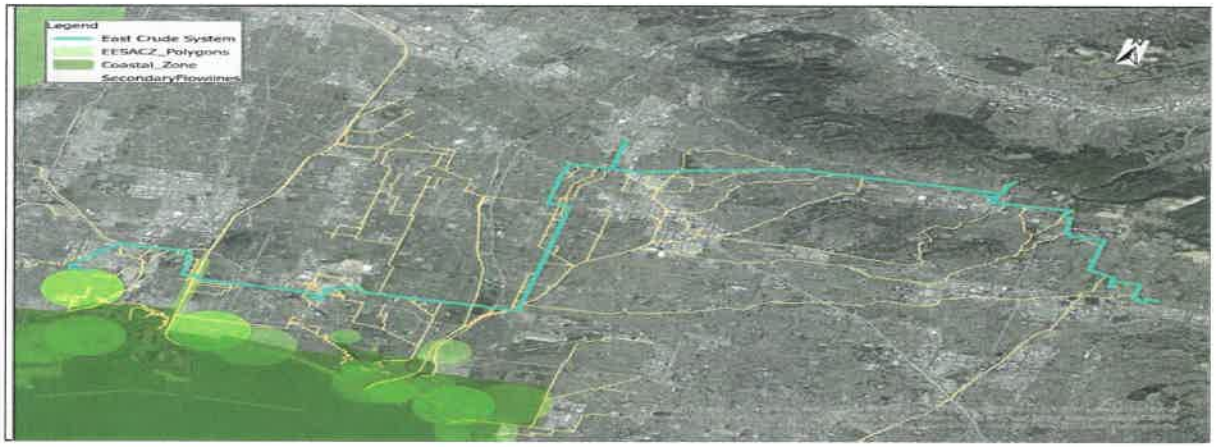
Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Information regarding the implementation plan and timing is still being developed. It will be provided to the OSFM by the December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.



Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. ***See tables on next page for risk analysis.***

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours						
Maximum shut-down response time, hours						
Maximum flow rate, barrels/hour						
Drain down volume, barrels						
Reasonable worst-case discharge volume, barrels						

1. Adding Atmos to the section from Redu gathering to Sterns Station. This includes Richfield to Sterns, Redu Gathering, West Naranjal and Stewart to Sterns. The spill volumes shown are for the Richfield to Sterns segment. The rest of the East Crude system has Atmos.

	Existing	#1 LDT	#2 ASS	#3 MOV	#4 EFRD	#5 Other
Maximum leak detection time, hours	0.25	0.25				
Maximum shut-down response time, hours	0.08333	0.08333				
Maximum flow rate, barrels/hour	450	450				
Drain down volume, barrels	1,058	1,058				
Reasonable worst-case discharge volume, barrels	1,153	1,153				

Note: Initial Release volume is 95 barrels.

2. This shows the Reasonable Worst Case Discharge impact on adding a MO to Existing Block Valve 418 at MP 2.4 on CSFM 858 Richfield to Sterns segment.

	Existing	*#1 LDT*	*#2 ASS*	*#3 MOV*	*#4 EFRD*	*#5 Other*
Maximum leak detection time, hours	*0.25*			*0.25*		
Maximum shut-down response time, hours	*0.08333*			*0.08333*		
Maximum flow rate, barrels/hour	*800*			*800*		
Drain down volume, barrels	*1,058*			*694*		
Reasonable worst-case discharge volume, barrels	*1,153*			*789*		

Note: Initial Release volume is 95 barrels.

3. This table below shows the Reasonable Worst Case Discharge impact on adding a MO to Existing Block Valve 471 at MP 5.69 on the CSFM 339 Brea Crude Line 700.

	Existing	#1 LDT	#2 ASS	#3 MOV	#4 EFRD	#5 Other
Maximum leak detection time, hours	0.25	0.25				
Maximum shut-down response time, hours	0.08333	0.08333				
Maximum flow rate, barrels/hour	800	800				
Drain down volume, barrels	3,023	1,740				
Reasonable worst-case discharge volume, barrels	3,086	1,803				

Note: Initial Release volume is 63 barrels.

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-E

Form PSD-2113
Implementation Plan

(Thums 8-inch Pipeline)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	415 Thums 8 Inch				
Product(s) normally transported:	**Crude Oil**				
Diameter of Subject Pipeline:	8 inch				
MOP of subject pipeline:	720 PSI				
Average Daily Shipping Volume:	6,800 BPD				
Contact person:	**David Blakeslee**				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	**562-285-4114**		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See attached CBAT report from Integrity Solutions for details on the risk analysis.

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

On this segment, Crimson will be installing a Motor Operator to existing Block valve 9560 at MP 2.26. The line is 3.58 miles long with existing MOV's on each end, one check and several existing block valves with Motor Operators. Based on a detailed analysis of the spill modeling for this segment, adding an MO to existing block valve 9560 will provide a relatively large reduction in the reasonable worst case discharge volume. The reduction is shown above for item MO. It shows that by installing the new MO, the spill volume will be reduced by 86 barrels or 28%. Note that the segment is almost entirely in the Coastal Zone so any spill will likely impact the coastal zone.

This system already has the ATMOS Leak detection system. Atmos meets the definition of BAT for leak detection technology.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Information regarding the implementation plan and timing is still being developed. It will be provided to the OSFM by the December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. *Note: Initial release volume is 82 barrels.*

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	1,650			1,650		
Drain down volume, barrels	304			218		
Reasonable worst-case discharge volume, barrels	386			300		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-F

Form PSD-2113
Implementation Plan

(Torrey to Santa Paula)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	459 Torrey to Santa Paula				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	8 inch				
MOP of subject pipeline:	700 PSI				
Average Daily Shipping Volume:	1,300 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See attached CBAT report from Integrity Solutions for details of the risk analysis.

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

Note that this lines currently flows from Santa Paula Station to Torrey Station, a distance of approximately 18.59 miles. In 2022, the line will be reversed and will flow from Torrey to Santa Paula. The appropriate paperwork will be filed with the CSFM at that time. The CBAT risk analysis was completed based on the new configuration.

The proposed BAT on this segment is the installation of ATMOS Leak Detection software. Crimson will be installing the ATMOS Leak Detection system as a supplement to the existing PI leak detection technology. Although it may be difficult to quantify the specific improvement in detection precision, the ATMOS system will provide a more robust leak detection capability. On this segment, Crimson will not be installing any additional EFRD's.

ATMOS meets the definition of BAT for leak detection technology. A description of the ATMOS leak detection system follows before the signature line.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

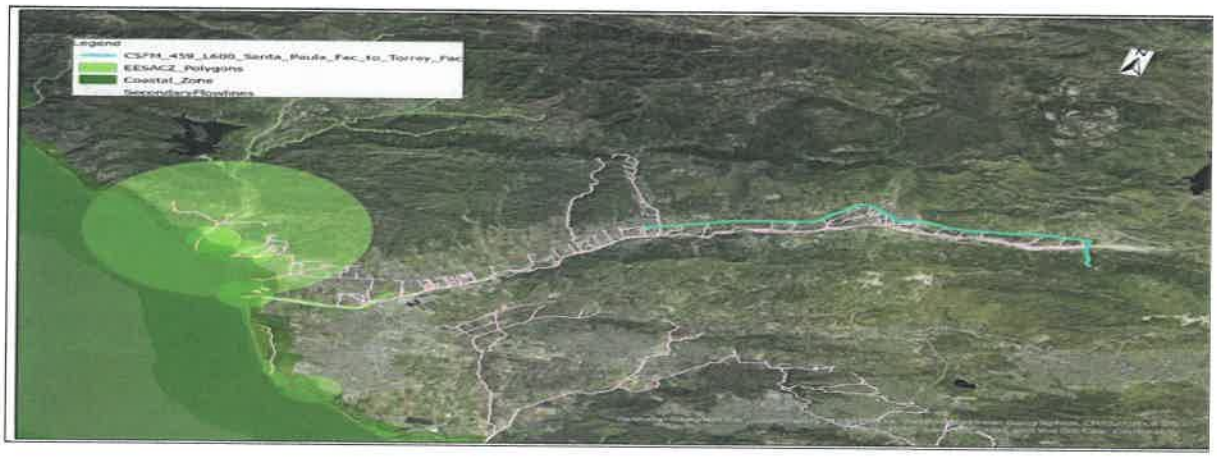
Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Implementation plans and timing are still under development. They will be provided to the OSFM by the December 1, 2021 deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.



Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. *Note Initial Release Volume is 91 Barrels.*

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25	0.25				
Maximum shut-down response time, hours	0.08333	0.8333				
Maximum flow rate, barrels/hour	500	500				
Drain down volume, barrels	5,480	5,480				
Reasonable worst-case discharge volume, barrels	5,571	5,571				

The ATMOS Leak Detection technology is described below:

Atmos leak detection software complies with AB 864 Section 2110 – Best Available Technology Determination

1) Atmos leak detection software is the most sensitive, accurate, reliable, and robust technology commercially available

2) Atmos leak detection technology can be applied to any pipeline operation and has been applied to over 1,000 pipelines in the U.S.

3) Highly sensitive Atmos leak detection systems detect leaks quickly to minimize spill sizes providing the greatest degree of protection

4) Atmos leak detection systems limits the quantity of release in the event of a spill by providing timely leak alarms allowing the operator to shut-in quickly

5) Atmos leak detection systems are available to all operators and have been used in coastal environments around the world

6) Atmos leak detection systems send alarms to operators on SCADA or DCS

7) Atmos leak detection systems provide spill volume reduction, and other environmental benefits through early warning of a leak

8) Atmos technology has been applied for 1,500 pipelines in 60 counties for 25 years

9) Atmos leak detection software can handle all pipeline operations and is compatible with most existing control and SCADA technologies

10) Atmos leak detection software has been applied to many different types of pipeline including those that cover long pipeline distances (1,000+ miles), changes in elevation (12,000ft), underwater environments, and limited access to pipe segments

11) Atmos innovative instrumentation, acquisition and processing technologies can be used to upgrade or compliment any existing technology

Further advantages:

- • Multiple solutions that can be tailored to any pipeline
- • Non-intrusive instrumentation
- • Power and communications options
- • Ideal for fast and easy retrofit to existing pipelines
- • Local expert engineering team

Atmos leak detection software meets the following standards:

1) American Petroleum Institute Recommended Practice 1175, "Pipeline Leak Detection – Program Management" (First Edition, December 2015).

2) American Petroleum Institute Recommended Practice 1130, "Computational Pipeline Monitoring for Liquids" (First Edition, September 2007, Reaffirmed April 2012).

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-G

Form PSD-2113
Implementation Plan

(Harbor Station to V-10 Line)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	CSFM 460 Harbor Station to V-10 Line 600				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	8 inch				
MOP of subject pipeline:	1,160 PSI				
Average Daily Shipping Volume:	1,600 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See Attached CBAT Report from Integrity Solutions for details of the risk analysis

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

Note that this segment currently pumps from Harbor Station to Santa Paula Station. As part of our V-10 Consolidation project, the line will only pump to the interconnect with the V-10 line, a distance of approximately 7.91 miles. This project will be completed in 2022 and appropriate paperwork will be filed with the CSFM. The CBAT analysis was completed based on the new configuration of the pipeline.

On this segment, Crimson will install a vault and new check valve at 3.5. Based on detailed spill modeling, this provides a dramatic reduction in the reasonable worst case discharge volumes. The number is reduced from 1,141 to 677 barrels, a reduction of 464 barrels or 41%.

This segment already has ATMOS leak detection technology which meets the definition of BAT for leak detection.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Implementation Plans and timing are still under development. They will be submitted to the OSFM by the current December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. ***Note: Initial release volume is 122 barrels.***

	Existing	LDT	ASOS	MOV	EFRD	Check
Maximum leak detection time, hours	0.25					0.25
Maximum shut-down response time, hours	0.08333					0.08333
Maximum flow rate, barrels/hour	560					560
Drain down volume, barrels	1,019					555
Reasonable worst-case discharge volume, barrels	1,141					677

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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Received On	Received by	Reviewed by	Status (Circle One)
			Approved Denied

Attachment 4-H

Form PSD-2113
Implementation Plan

(Northam Gathering)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	Northam Gathering CSFM 825, 1305, 39 and 41				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	6 and 8 inch				
MOP of subject pipeline:	600 to 736 PSI				
Average Daily Shipping Volume:	6,150 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See attached CBAT report from Integrity Solutions for details on the risk analysis.

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

On this segment, Crimson will be installing a Motor Operator to existing Block valve 602 at MP 7.7. The line is 24.5 miles long with existing MOV's on each end, one check (Garfield Junction) and one existing block valve (MOV 241 at NY Junction) with Motor Operator. Based on a detailed analysis of the spill modeling for this segment, adding an MO to existing block valve 602 will provide a relatively large reduction in the reasonable worst case discharge volume. The reduction is shown below item MOV. It shows that by installing the new MO, the spill volume will be reduced by 164 barrels or 30%. Note that the segment is starts in the Coastal Zone so a spill in the southern most section would likely impact the coastal zone.

This system already has the ATMOS Leak detection system. ATMOS meets the definition of BAT for leak detection technology.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Information regarding the implementation plan and timing is still being developed. It will be provided to the OSFM by the December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. *Note: Initial release volume is 125 barrels.*

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	870			870		
Drain down volume, barrels	426			262		
Reasonable worst-case discharge volume, barrels	551			387		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

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			Approved Denied

Attachment 4-I

Form PSD-2113
Implementation Plan

(Sulfur Crest)

Form PSD-2113
Implementation Plan

Title 19 California Code of Regulations (CCR) Section 2113 applies to pipelines that do not currently have best available technology installed. An operator shall analyze the risk from its pipelines, identify best available technology in their risk analysis, develop an implementation plan, and submit these documents to the OSFM for review.

Using the form PSD-2113 is optional, an operator may submit the required information in another format.

Name of Pipeline Operator:	Crimson California OPID 32103				
OSFM Pipeline ID number:	CSFM 867 Sulfur Crest				
Product(s) normally transported:	Crude Oil				
Diameter of Subject Pipeline:	6 inch				
MOP of subject pipeline:	1,038 PSI				
Average Daily Shipping Volume:	2,000 BPD				
Contact person:	David Blakeslee				
Mailing address:	3760 Kilroy Airport Way Suite #300				
City:	Long Beach	State:	CA	Zip:	90806
Email:	dblakeslee@crimsonpl.com	Phone:	562-285-4114		
Do you wish to request confidential treatment of your risk analysis and plan(s)? ◯ Yes ◉ No[1]					

Agent/contractor (if applicable)

Name of Contractor:	CT Corporation	Contact person:	Shayna Lloyd
Email:	EastTeam1@wolterskluwer.com	Phone:	1-800-716-0507

Note: All supporting documentation and risk analysis information shall be made available to the OSFM upon request.

See Attached CBAT Report from Integrity Solutions for details of the risk analysis

Proposed Best Available Technology (BAT)

According to 19 CCR Section 2100(a)(2), Best Available Technology (BAT) means technology that provides the greatest degree of protection by limiting the quantity of release in the event of a spill, taking into consideration whether the processes are currently in use and could be purchased anywhere in the world.

[1] Operator shall review the additional submission requirements under Section 2119(b).

What is the proposed BAT? Justify why the proposed BAT is chosen. Provide a list of BAT(s) including the location(s) of the BAT(s) installed on the subject pipeline. Briefly describe how each BAT limits the quantity of release in the event of a spill.

On this segment, Crimson will install a MO to existing block valve #51 at MP 2.97. Based on detailed spill modeling, this provides a dramatic reduction in the reasonable worst case discharge volumes. The number is reduced from 1,661 to 979 barrels, a reduction of 682 barrels or 41%.

This segment has PI leak detection technology. Crimson is evaluating whether the system could be upgraded to the ATMOS leak detection system. No determination has been made whether that is possible.

The OSFM will review and assess the adequacy of the proposed BAT for reducing the amount of oil released in an oil spill to protect state waters and wildlife. Within 60 days of OSFM acceptance, a detailed supplemental implementation plan and Form PSD-103 should be submitted to PipelineNotification@fire.ca.gov.

Timetable for Implementation

Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction.

Deviation from this timetable must be communicated to OSFM in writing and should demonstrate good cause for delay

Implementation Plans and timing are still under development. They will be submitted to the OSFM by the current December 1, 2021, deadline.

Vicinity Map

Provide a map or multiple maps (for multiple Environmentally and Ecologically Sensitive Areas [EESAs]) of the subject pipeline near EESA(s). Provide a brief description (e.g. distance from the coastal zone) and highlight the following feature(s) on the map (if applicable):

- Any physical geographic features such as soil and terrain, or drainage systems such as small streams and other smaller waterways, that could serve as a conduit to an EESA.
- Potential natural forces inherent in the area.
- Any natural and manmade barriers.
- Potential physical pathways between the pipeline and EESA(s).
- Any physical feature or peculiarity of local geography that call for special precautionary measures because they may affect an EESA.

Summary of Risk Analysis

19 CCR Section 2109 states that BAT includes, but is not limited to, the installation of leak detection technology (LDT), automatic shutoff systems (ASOS), remote controlled sectionalized block valves (MOV), Emergency Flow Restriction Devices (EFRDs), or any combination of these technologies.

Provide the results of risk analysis for each type of BAT. If you identify another technology as the BAT, please identify and describe the other technology, explain how this technology limits the quantity of release in the event of a spill, and provide the reasonable worst-case discharge volume for other technology used. ***Note: Initial release volume is 90 barrels.***

	Existing	LDT	ASOS	MOV	EFRD	Other
Maximum leak detection time, hours	0.25			0.25		
Maximum shut-down response time, hours	0.08333			0.08333		
Maximum flow rate, barrels/hour	260			260		
Drain down volume, barrels	1,571			889		
Reasonable worst-case discharge volume, barrels	1,661			979		

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.

Signature	Printed Name, Title	Date
	Valerie R. Jackson, Vice President Engineering and Compliance	10-7-2021

For Office Use Only

Received On	Received by	Reviewed by	Status (Circle One)
			Approved Denied

Exhibit 5

CBATIA Tariff Language

Item No. _____:

CPUC Decision No. __-__-__ issued ____, 2022 authorized establishment of the CBAT Improvement Account (CBATIA). The purpose of the CBATIA is to record and track the costs incurred by Crimson in meeting the requirements of Government Code Section 51013.3 and related regulations administered by the California State Fire Marshall, including the costs of evaluating and, as appropriate, installing the best available technology on its existing intrastate pipelines that are near environmentally and ecologically sensitive areas in the coastal zone.

The CBATIA is effective April 1, 2020 until closed at the direction of the Commission.

The following categories of costs will be recorded and accounted for in the CBATIA: (1) Engineering; (2) Amos & SCADA Programming; (3) Permitting; (4) Equipment and Materials; (5) Construction; and (6) Legal.

The balance in the CBATIA will be amortized by imposition of a surcharge of $0.14 per barrel on the transportation of crude oil on all tariff routes and related movements on Crimson's southern California pipeline system as set forth in the Crimson's Commission-approved tariffs. The surcharge will remain in effect for the period required to recover the actual costs of CBAT compliance as recorded in the CBATIA. Upon recovery by Crimson of the costs recorded in the CBATIA, the surcharge will terminate.

Exhibit 6

Draft Tariff Sheets Showing Tariff Routes
and Related Movements Subject to Surcharge

CRIMSON CALIFORNIA PIPELINE L.P.

LOCAL TARIFF

APPLYING ON THE TRANSPORTATION OF

CRUDE PETROLEUM

Governed, except as otherwise provided herein, by rules & regulations published in Crimson California Pipeline L.P. Cal. P.U.C. No. 27, supplements thereto or successive issues thereof.

(Rates in cents per barrel of 42 United States Gallons each)

ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	East Crude System (Line 700), Stewart Station, Orange County	Phillips 66 Carson Refinery, Los Angeles County	114.97
02		World Oil Refinery South Gate, Los Angeles County	118.27
03	East Crude System (Line 700), Norwalk Station, Los Angeles County	Phillips 66 Carson Refinery, Los Angeles County	99.38
04		World Oil Refinery South Gate, Los Angeles County	105.44

GATHERING CHARGE: The rates named are for trunk line transportation only. No gathering service will be performed under this tariff.

In addition to the rules and regulations stated above, the applicable option associated with the rule will apply:

Rule 70C. Gauging, Testing, and Volume Corrections: Loss Allowance of 0.25%

*** [I] Per Commission Resolution No. _____, a surcharge of $0.14 per barrel will be assessed to recover CBAT-related compliance costs.**

ISSUED: November 12, 2021 **EFFECTIVE: _____**

Issued By:
L. W. ALEXANDER, President
CRIMSON CALIFORNIA PIPELINE L.P.
3760 Kilroy Airport Way #300
Long Beach, CA 90806

Explanation of abbreviations and reference marks:

[I] Increase
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(Rates in cents per barrel of 42 United States Gallons each)

ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	Ventura Station, Ventura County	PBF Junction, Los Angeles County	130.56
02		Torrance Station, Los Angeles County	130.56
03		Sepulveda Vault	130.56
04	Santa Paula Station, Ventura County	PBF Junction, Los Angeles County	130.56
05		Torrance Station, Los Angeles County	130.56
06		Sepulveda Vault	130.56
07	Torrey Station, Ventura County	PBF Junction, Los Angeles County	130.56
08		Torrance Station, Los Angeles County	130.56
09		Sepulveda Vault	130.56

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ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	Line #600, Pico Tie-in, Los Angeles County	PBF Junction, Los Angeles County	87.69
02		Torrance Station, Los Angeles County	87.69
03		Sepulveda Vault, Los Angeles County	87.69
04	Line # 600, Venice Tie-in, Los Angeles County	PBF Junction, Los Angeles County	87.69
05		Torrance Station, Los Angeles County	87.69
06		Sepulveda Vault, Los Angeles County	87.69

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ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
02	Ventura Tank Farm, Ventura County	PBF Junction, Los Angeles County	111.25
03		Phillips 66 Carson Refinery, Los Angeles County	111.25
04		Lomita Manifold Area, Los Angeles County	111.25
05		Marathon Los Angeles Refinery, Los Angeles County	124.01

GATHERING CHARGE: The rates named are for trunk line transportation only. No gathering service will be performed under this tariff.

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Rule 70C. Gauging, Testing, and Volume Corrections: Loss Allowance of 0.25%

*** [I] Per Commission Resolution No. _____, a surcharge of $0.14 per barrel will be assessed to recover CBAT-related compliance costs.**

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Cal. P.U.C. No. 99.6
Cancels Cal. P.U.C. No. 99.5

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CRUDE PETROLEUM

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(Rates in cents per barrel of 42 United States Gallons each)

ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINTS IN CALIFORNIA	MONTHLY VOLUME (IN BARRELS)	RATE*
01	Inglewood Connection Los Angeles County	Sepulveda Vault, Los Angeles County	0 - 360,000	105.59
02		PBF Junction, Los Angeles County		
03		Torrance Station, Los Angeles County		
04	Inglewood Connection Los Angeles County	Sepulveda Vault, Los Angeles County	Over 360,000	60.59
05		PBF Junction, Los Angeles County		
06		Torrance Station, Los Angeles County		

In addition to the rules and regulations stated above, the applicable option associated with the rule will apply:
Rule 70C. Gauging, Testing and Volume Corrections: Loss allowance of 0.25%

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(Rates in cents per barrel of 42 United States Gallons each)

ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	Beta, Los Angeles County	Marathon Los Angeles Refinery, Los Angeles County	52.97
		Phillips 66 Los Angeles Refinery, Los Angeles County	
		Valero Refinery, Los Angeles County	
03	Thums Terminal, Los Angeles County	Marathon Los Angeles Refinery, Los Angeles County	52.97
		Phillips 66 Los Angeles Refinery, Los Angeles County	
		Valero Refinery, Los Angeles County	
05	Warren Townlot Unit, Los Angeles County	Marathon Los Angeles Refinery, Los Angeles County	52.97
		Phillips 66 Los Angeles Refinery, Los Angeles County	
		Valero Refinery, Los Angeles County	
07	North Wilmington, Los Angeles County	Phillips 66 Los Angeles Refinery, Los Angeles County	52.97

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In addition to the rules and regulations stated above, the applicable option associated with the rule will apply:

Rule 70C. Gauging, Testing, and Volume Corrections: Loss Allowance of 0.25%

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CRIMSON CALIFORNIA PIPELINE L.P.

LOCAL TARIFF

APPLYING ON THE TRANSPORTATION AND GATHERING OF

CRUDE PETROLEUM

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(Rates in cents per barrel of 42 United States Gallons each)

ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	Northam Trunk System (Montebello Area, Los Angeles County)	[W] East Crude System (Line 700), Norwalk Station, Los Angeles County	157.67
02	Northam Trunk System (Seal Beach Area, Los Angeles-Orange County)	[W] East Crude System (Line 700), Norwalk Station, Los Angeles County	90.35
03	Northam Trunk System (Huntington Beach Area, Orange County)	[W] Phillips 66 Carson Refinery, Los Angeles County	* 201.97
04		[W] World Oil Refinery South Gate, Los Angeles County	* 201.97
05		[W] PBF Junction, Los Angeles County	* 212.97
06		[W] Marathon Los Angeles Refinery, Los Angeles County	* 246.97

GATHERING CHARGE: The rates named are for trunk line transportation only. No gathering service will be performed under this tariff.

In addition to the rules and regulations stated above, the applicable option associated with the rule will apply:

Rule 70C. Gauging, Testing, and Volume Corrections: Loss Allowance of 0.25%

***Note: Northam Trunk System (Montebello Area) is now a through tariff including gathering and trunk service to the East Crude System (Line 700). Northam Trunk System (Huntington Beach Area) is now a through tariff including gathering and trunk services to Destinations as indicated. See cancellation of Montebello Gathering Tariff and Huntington Beach Gathering Tariff (CPUC 105.5).**

*** [I] Per Commission Resolution No. _____, a surcharge of $0.14 per barrel will be assessed to recover CBAT-related compliance costs.**

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ROUTE NO.	ORIGIN POINT IN CALIFORNIA	DESTINATION POINT IN CALIFORNIA	RATE*
01	East Crude System (Line 700), Stewart Station, Orange County	PBF Junction, Los Angeles County	126.11
02	East Crude System (Line 700), Norwalk Station, Los Angeles County		110.52

GATHERING CHARGE: The rates named are for trunk line transportation only. No gathering service will be performed under this tariff.

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01	East Crude System (Line 700), Stewart Station, Orange County	Sepulveda Vault	126.11
02	East Crude System (Line 700), Norwalk Station, Los Angeles County		110.52

GATHERING CHARGE: The rates named are for trunk line transportation only. No gathering service will be performed under this tariff.

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